THE SANDALMAKING WORKSHOP

MAKE YOUR OWN

Mary Janes, Crisscross Sandals, Mules, Fisherman Sandals, Toe Slides, and More

Rachel Corry

RACHEL SEES SNAIL SHOES

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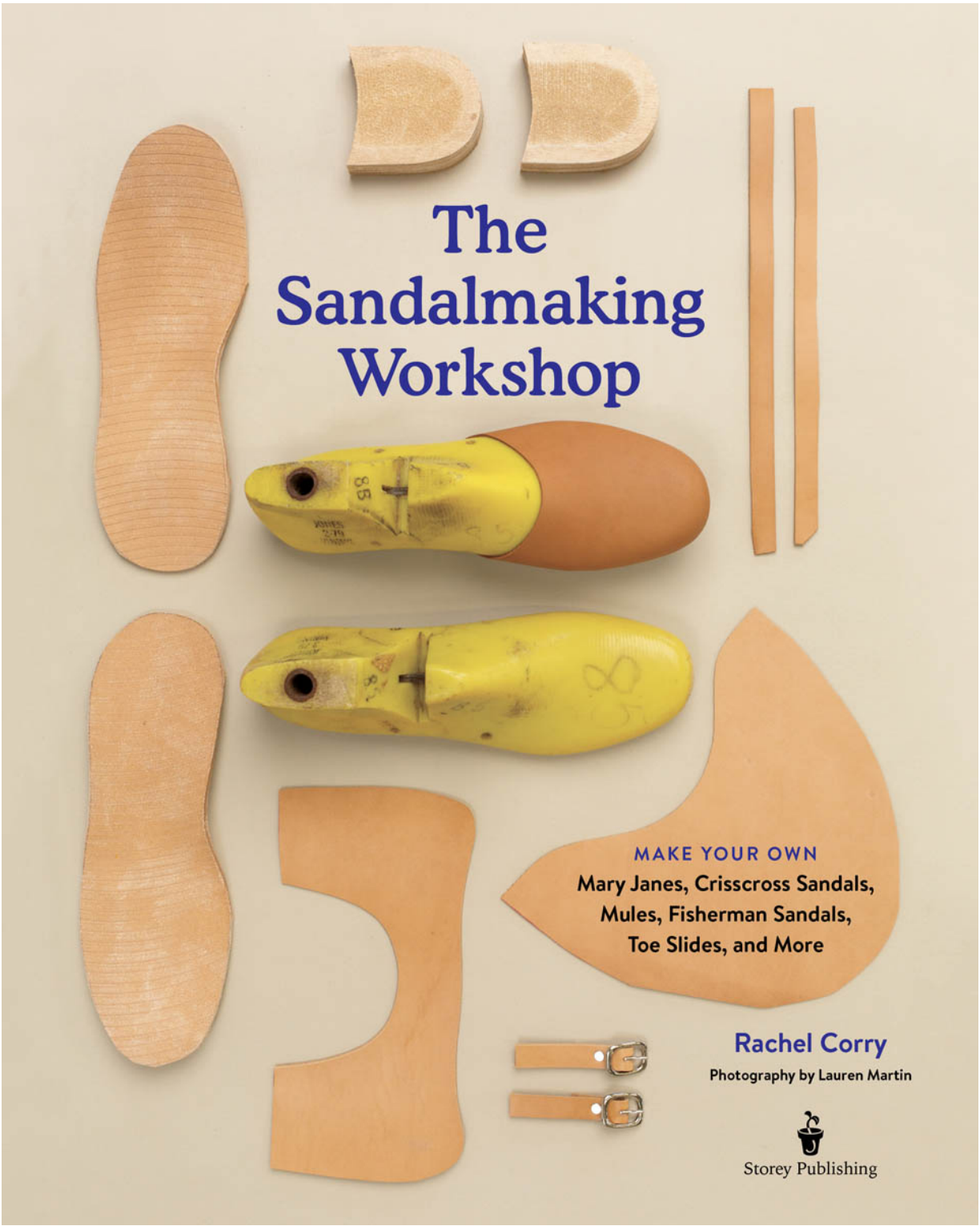
The Sandalmaking Workshop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Rachel Corry
Photography by Lauren Martin
Storey Publishing

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Edited by Carleen Madigan and Michal Lumsden

Art direction and book design by Michaela Jebb

Indexed by Nancy D. Wood

Cover and interior photography by © Lauren Martin

Additional photography by © Rachel Corry, 91, 97 r. t. & b., 115, 121, 133 b.l & b.r., 139, 151, 161, 169 b.; © Airyka Rockefeller, viii b.l., 97 m.r.; Aldanondoyfdez, 83 m.; Courtesy of Amara Hark-Weber, 82 t.; © Brooklyn Shoe Space, 82 2nd from t.; Courtesy of Jason Hovatter, 82 b.; Jeremy Atkinson, 83 2nd from b.; Courtesy of Julie Derrick, 83 t.; © Lisa Sorrell, 83 b.; Courtesy of Reid Elrod, 82 2nd from b.; Courtesy of Sevilla Smith Shoes, 83 2nd from t.; © William (Boy) Habraken, courtesy of ShoesornoShoes, 20—21

Illustrations by © Rachel Corry

Patterns by Ilona Sherratt © Storey Publishing, based on sketches by the author

Text © 2021 by Rachel Corry

Ebook production by Slavica A. Walzl

Ebook version 1.0
April 13, 2021

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Storey Publishing

210 MASS MoCA Way

North Adams, MA 01247

storey.com

LIBRARY OF CONGRESS CATALOGING-IN-PUBLICATION DATA

Names: Corry, Rachel, author.

Title: The sandalmaking workshop : make your own Mary Janes, crisscross sandals, mules, fisherman sandals, toe slides, and more / Rachel Corry.

Description: North Adams, MA : Storey Publishing, 2021. | Includes index.

Identifiers: LCCN 2020045311 (print) | LCCN 2020045312 (ebook) | ISBN 9781635862355 (hardcover) | ISBN 9781635862362 (ebook)

Subjects: LCSH: Sandals—Design and construction. | Footwear—Design and construction.

Classification: LCC TT678.5 .C67 2021 (print) | LCC TT678.5 (ebook) | DDC 685/.3103—dc23

LC record available at https://lccn.loc.gov/2020045311

LC ebook record available at https://lccn.loc.gov/2020045312

Thanks to Jeremy Atkinson, the clogmaker, for giving me my first glimpse into the life of a shoemaker. His dedication to his craft and openness in sharing his knowledge set an example I hope to follow.

CAT'S PAW
CAT'S PAW
miserable

Alena

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Introduction to Sandalmaking

I came to sandalmaking by accident. In 2009, a small fire in my apartment in San Francisco burned all the shoes and clothes in my closet. As I was sorting through what remained, I noticed that a pair of recently custom-made sandals had fallen apart in layers, revealing their internal structure. The construction of the sandal was suddenly made clear to me. Because I couldn't afford to replace all of the shoes I had lost, I set out to remake some of my favorite sandals myself.

The first pair I made were strappy leather sandals similar to the Hippie Sandals. The finished pair ended up being comfortable and quite beautiful. They aged in that brilliant way that natural leather does — becoming dark and soft with time and use. I was hooked. The feeling of making and wearing my own shoes was one of real pride. At the time, I worked at a bakery and would show my new creations to friends and customers. The enthusiastic responses usually fell into one of two camps: either people wanted me to make them a pair or they wanted to make their own.

Soon enough, friends asked me to teach a workshop at their store. I was concerned that it might be too much work for the average newcomer but decided to give it a try because my friends were so excited. I encouraged the participants to design whatever they wanted and I was delighted (and relieved) to see everyone succeed in making unique, wearable sandals. It was such a gratifying experience that I've continued to teach ever since. The interest in these workshops is strong: people of all ages and professions have a strong desire to make their own shoes. I'm lucky to have the opportunity to travel to new places and share my passion and skills with new groups every month. Although flying with heavy shoe anvils can be challenging!

I came up with my brand name, Rachel Sees Snail Shoes, in part because I've had a lifelong affinity for snails. Also, I knew snails to be the mascot of the slow food movement, and my ethos at the time I started my business was to slow down and do things myself — to create special objects with intention. This sentiment has only strengthened with time; I'm as interested as ever in the benefits and challenges of slow fashion.

When I tell older people that I make sandals for a living, they often report that they made their own sandals once, too. It seems the craft was alive and well in decades past as both a hobby and a way to earn a living. But when manufacturing largely left the United States in the 1980s, the small-scale shoemaking industry was greatly weakened. As someone growing up in the years since, I had always seen shoes, often made in China or Italy, as mysterious objects. The methods of production were inscrutable to me, and the thought of making my own shoes seemed almost impossible.

When I finally set out to learn sandalmaking, resources were scarce. It felt as though shoemaking (at least in the United States) was an endangered art form. I am relieved to report that this is no longer the case: the internet has helped me connect with all sorts of innovative shoemakers. The craft may have gone dormant for a time, but it is being rediscovered by new makers every day. I am eager to see what this generation makes of such an old-world craft.

I Love Sandalmaking for So Many Reasons

1. It's easy enough for beginners. Using only a few simple tools, a person can make a comfortable pair of sandals in the course of a day. A knowledge of sewing isn't necessary, and neither is physical strength. Yet sandalmaking presents plenty of creative challenges for even the most ambitious makers. I'm

still dreaming up sandals I want to make, and I've been doing this for 10 years!

2. Feet are unique. When you make your own shoes, you can customize according to your foot shape, heel height, and favorite colors. This is especially helpful for those dealing with hard-to-fit foot sizes, orthopedic issues, high insteps, and the like. Making your own shoes can satisfy the desire to be both original and comfortable.

3. Style is unique. As you may have noticed, people often have very individual ideas about design. Whether you're seeking something ultra-minimal, totally eccentric, or less gender specific, making your own shoes can allow you the space to be original.

4. There's a sense of achievement. The feeling that comes from building two symmetrical, functional, wearable sculptures is really special. I get to watch that pride emerge on a regular basis at my workshops. As their sandals begin to take shape, students often become giddy and start shouting, "I'm making my own shoes!" And from my experience, nothing beats responding to a shoe compliment with a simple "Thank you; I made them."

5. Sandals = history. Thousands of years ago, Greeks, Romans, Egyptians, and Native Americans wore sandals very similar to ones we wear today. Footwear hasn't changed much over the millennia: strappy leather, pointy slippers, woven grass. When I visit museums, I recognize these styles on vases and paintings and feel a kinship with ancient people. Cultures around the

world each have their own folk shoe traditions, and nearly all include a type of sandal. I love to consider the stylistic overlaps spanning different cultures and eras, and I take inspiration from these timeless designs. (To learn about handmade shoes from around the world, see here.)

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6. Respect for makers. Nearly all of the shoes we buy in the United States are made by people who are out of sight, working in another country. This creates a disconnect, a lack of awareness that has enabled unhealthy consumption. I believe that when you learn what goes into making a shoe, you gain not only a better understanding of the object but also a greater appreciation for the people who make it.

For some people, sandalmaking is something they'll do once or twice. For others, it can become a practice they continue over their lifetime, making pairs for themselves, friends, family, and customers. It's a wonder to me that the craft isn't currently practiced more widely, but I suspect that it's about to have a new wave of interest.

Around 2009, I discovered there were no contemporary books on sandalmaking. I've dreamed of writing a book of my own since then. People are eager to make their own footwear, but it can be hard to know where to begin. I can relate. It took me years of asking the right and wrong people the right and wrong questions before I was able to gather enough useful information to share. I hope this book will help those who are shoe-curious to take their first steps into the craft — and for some, inspire a lifetime of shoemaking.

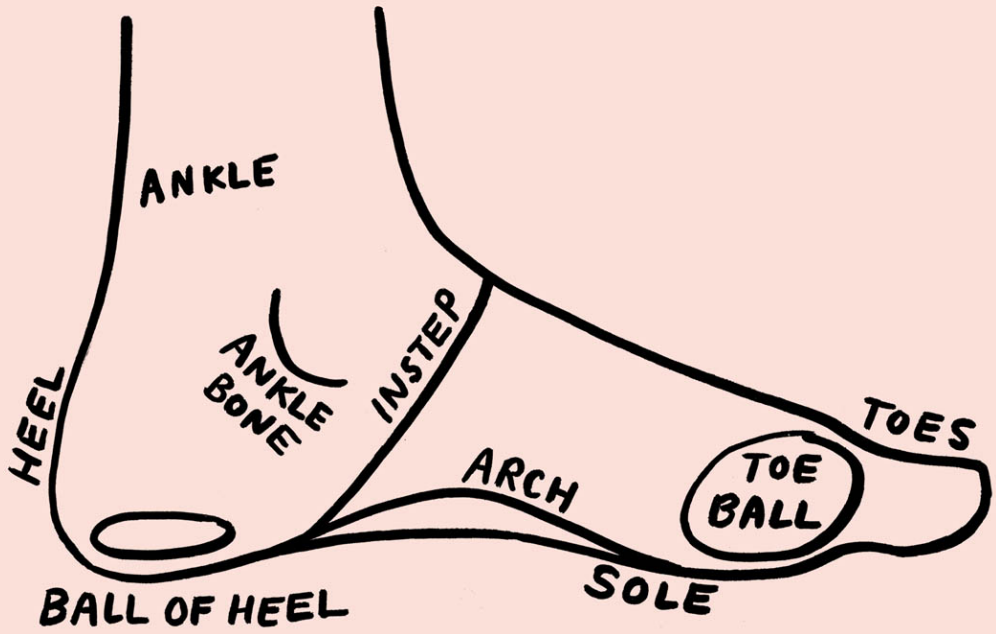
CHAPTER 1

Setting Up Your Workshop

When I started making my own footwear, I wasn't prepared to invest a lot in tools and materials. I was just dipping a toe in, so to speak, to see if I liked the craft. I discovered that making a pair of shoes — especially sandals — requires only a few tools, none of which cost very much. In this spirit, I've created a basic list of tools and materials and a more extensive list.

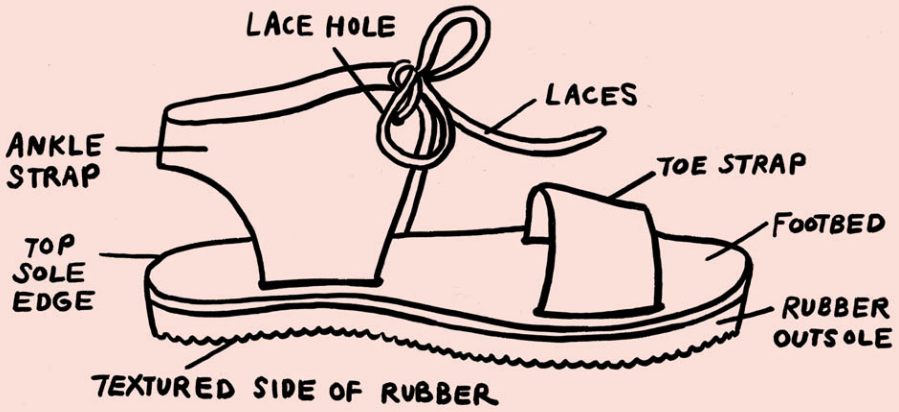
ANATOMY OF A FOOT

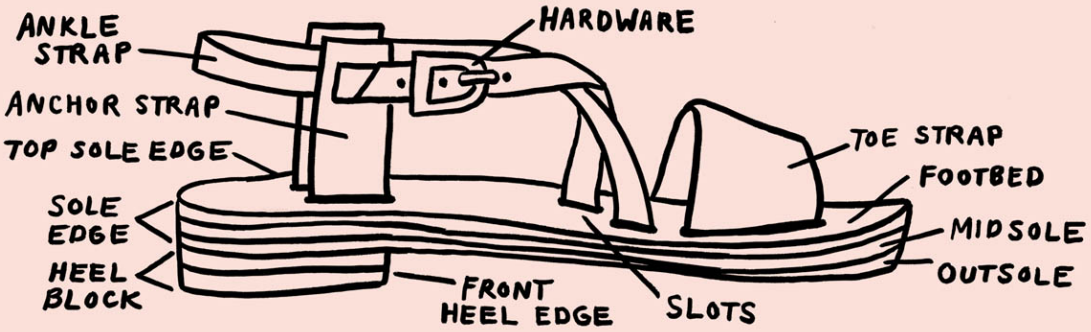
Before I explain what you'll need to buy to make a pair of shoes, let's step back and get to know the foot and the parts of a shoe.

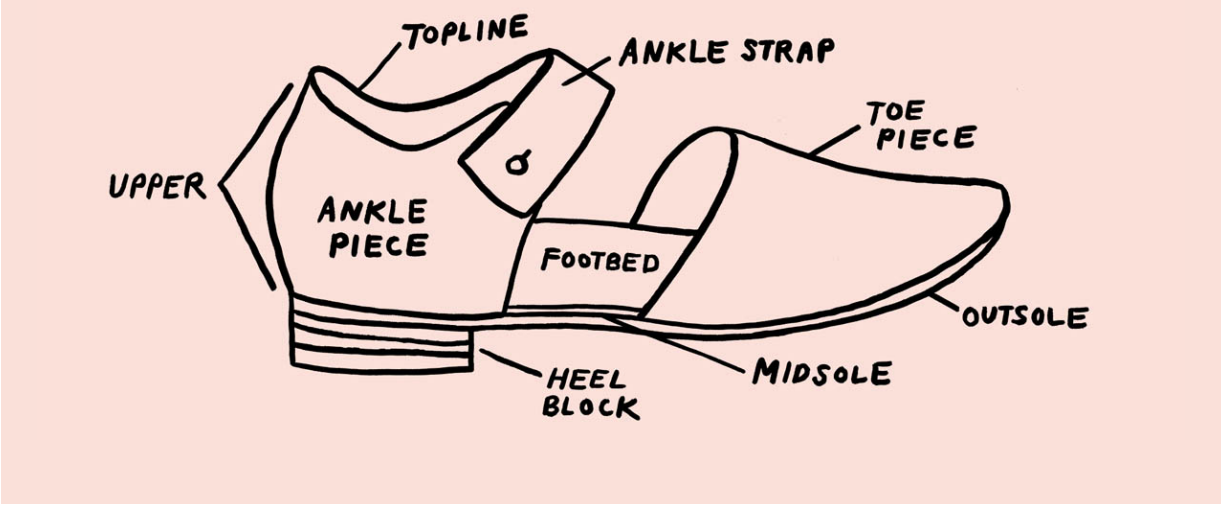


ABOVE: *Admittedly, the term* sole *can be confusing: it can refer to the bottommost layer of a shoe or to the entire combination of layers under a foot. To avoid confusion, in this book I use the term* footbed *for the topmost layer underfoot,* midsole *for the optional middle layer of the sole, and* outsole *for the bottommost layer of the shoe.*

ANATOMY OF A SANDAL







Basic Tools and Materials

You should be able to stock up on the tools and materials you'll need to get started for less than $100. If you want a wider variety of tools, and more material to draw upon for several pairs of sandals, you may end up doubling your initial expenses, depending on the quantities you purchase.

Here's what you need to get started:

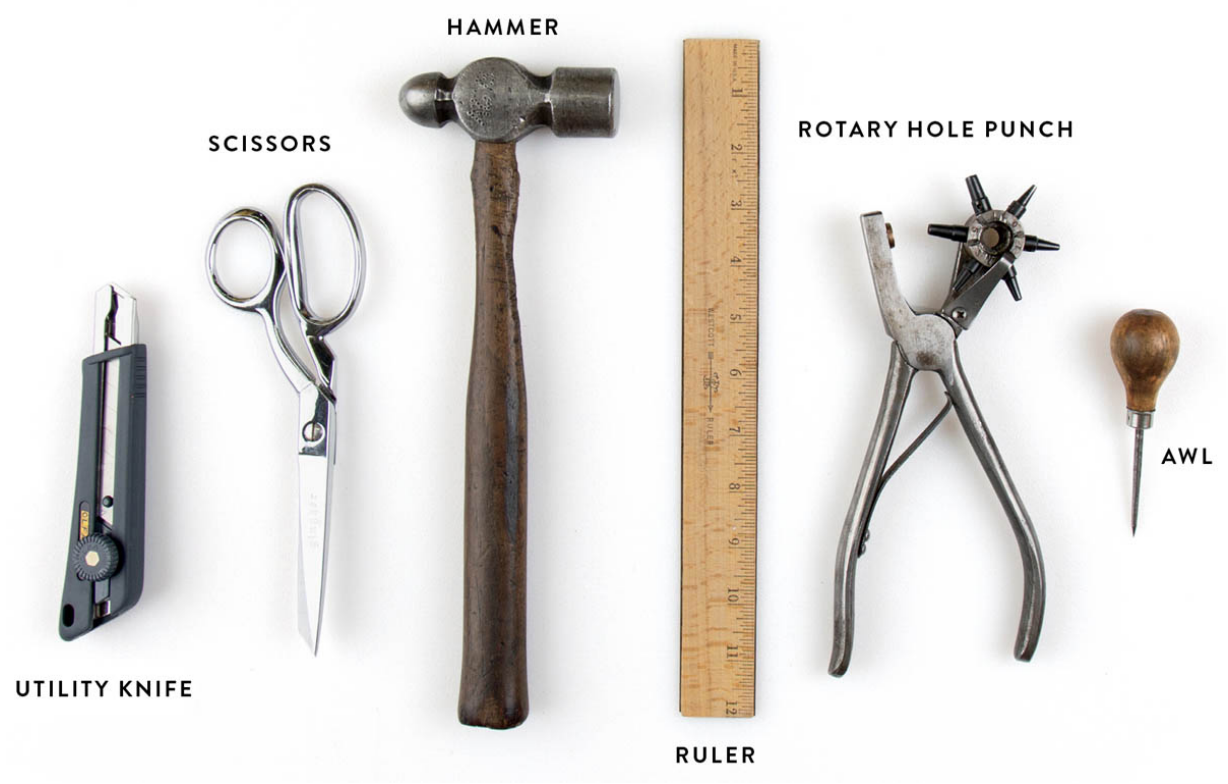
Utility knife. I prefer Olfa brand 18 mm utility knives with snap-off blades. I like this brand partly because you can find it everywhere. Smaller, 9 mm blades also work but are more likely to break while cutting through thick material, so I suggest the sturdy kind. Alternatively, a straight shoemaker's blade is great if you're accustomed to working with those. Feel free to use any knife that is sharp — and please use with caution!

Awl. This is a simple tool with a pointy end that you'll use for scratching and marking the leather.

Rotary hole punch. A rotary (or revolving) punch with several settings for different size holes is indispensable. You'll use the smallest setting to create customized slots and the larger settings for rivets, studs, and lace holes.

Scissors. Sharp steel scissors are great for cutting thinner leather, especially on curves, and for cleaning up leather edges. Fabric shears work well, but they can be expensive. I prefer household kitchen scissors with 4-inch blades.

Hammer. Any metal hammer will work, but I prefer using one with a slightly rounded edge, which helps prevent denting the leather when hammering.



Pencil and permanent marker. I use both a pencil and a permanent marker for different purposes as I work. Keep each of these items nearby at all times and use whatever will show up clearly on the leather you are working with. Don't use a ballpoint pen on leather because it will run!

Paper. For pattern making, I use a wide variety of recycled paper. Printer or butcher paper works great — or you can use Swedish tracing paper if you're fancy.

Masking tape. I use strong masking tape to hold sandal parts together while I test the fit.

Ruler or straightedge. You will need something to measure with and to cut against to produce straight lines. I like using a

transparent quilting ruler.

Shoe glue. Traditionally cobblers use solvent-based shoe cement; Barge, Renia, Jet Set, and Masters are common brands. Because of its chemical components, I try to reserve using solvent-based glue for securing heels and outsoles, which are more exposed to the elements than shoe uppers are. A solvent-based glue will be essential when you work with a synthetic soling material. Renia makes strong glues without some of the more toxic ingredients, so I recommend looking for their products. Use a water-based leather glue such as EcoWeld, Eco-Flo, Renia Aquilim 315, or any white leathercraft glue when bonding leather to leather, including when you line leathers, glue down tabs, and attach midsoles.

Upper leather. Use medium-weight (3/4, 4/5, or 5/6 ounce) leather of any kind. Alternatively, you can adhere thin 2/3 ounce leather to another 2/3 ounce leather to produce the desired upper thickness. For more information about leather, see Choosing Leather.

Footbed leather. Use the thickest, or heaviest-weight, leather you can find, such as 8/9, 9/10, or 10/11 ounce.

Rubber soles or heavy leather soles. What we usually think of as “rubber” outsoles actually come in many materials, including foam rubber, ethylene vinyl acetate (EVA), or crepe. Expect something similar to what you’d find on the footbed of a flip-flop, available in a variety of densities and formulations. It’s often sold in sheets or half sheets, but it can also be found in large sole-shaped pairs, which you cut down to size.

If you purchase a sheet of soling material, be sure one side has tread or texture so you don’t slip. Vibram, Soletech, Birkenstock, and Ultra are common brands, and Soletech’s Dogbone or Cloud options are among my favorites. Thicknesses

of 12-, 15-, 18-, and 24-iron (equivalent to 1/4 inch to 1/2 inch thick) are good for sandal projects; 3/8-inch thickness is ideal. Gum soling is another option, but it's not a favorite of mine because the edges don't cut or sand to a smooth finish.

For heavy leather outsoles, 7/8 ounce or 9/10 ounce thicknesses are ideal, but 7/8 ounce will be much easier to cut by hand. Leather in these weights is sold in sheets and sometimes in large men's shoe shapes, to be cut down to size. In addition to the term "heavy leather soling," the stiff leather appropriate for outsoles is sometimes called full soles, soling leather, or a soling bend.

Laces. You can use leather lacing, round leather cord, or hand-cut strips for laces. I use 2 mm or 3 mm round leather cord most frequently, but I enjoy a variety of thicknesses and textures.

Buckles. I tend to use brass and nickel buckles that are between 1/2 inch and 1 inch wide. Be sure to look for buckles with a middle bar so your strap can tuck behind it.

Studs. I recommend using extra-small (1/4-inch-tall) button-head studs and screw backs that have a sloped base that blends into the leather instead of standing tall. The extra-small size keeps the hardware from sticking out too far from the foot. These button-head studs with a screw back are also called Sam Browne studs. They come in a variety of finishes; brass and nickel are the most common.

Rivets. A rivet is made up of two parts: a post and a cap. Small or extra-small double-cap rivets are the correct size for going through two layers of medium-weight leather. The rivet should just barely exceed the thickness of the layers it is holding together. If the rivet post is much taller than that, it won't set up correctly.

Additional Tools and Materials

Beyond the basic items listed on the previous pages, the following tools and materials will help make some aspects of your sandalmaking go more smoothly.

Self-healing cutting mat. You can use a plastic cutting board instead if you already have one. When I've needed to improvise, I've cut over cardboard or an unfussy worktable.

Whatever surface you use for cutting, the larger it is, the better.

Wooden or rawhide mallet. Use this to hit metal punches. In contrast to a metal hammer, the relatively soft mallet will protect your hand from much of the shock, plus you'll avoid that metal-on-metal clanging sound.

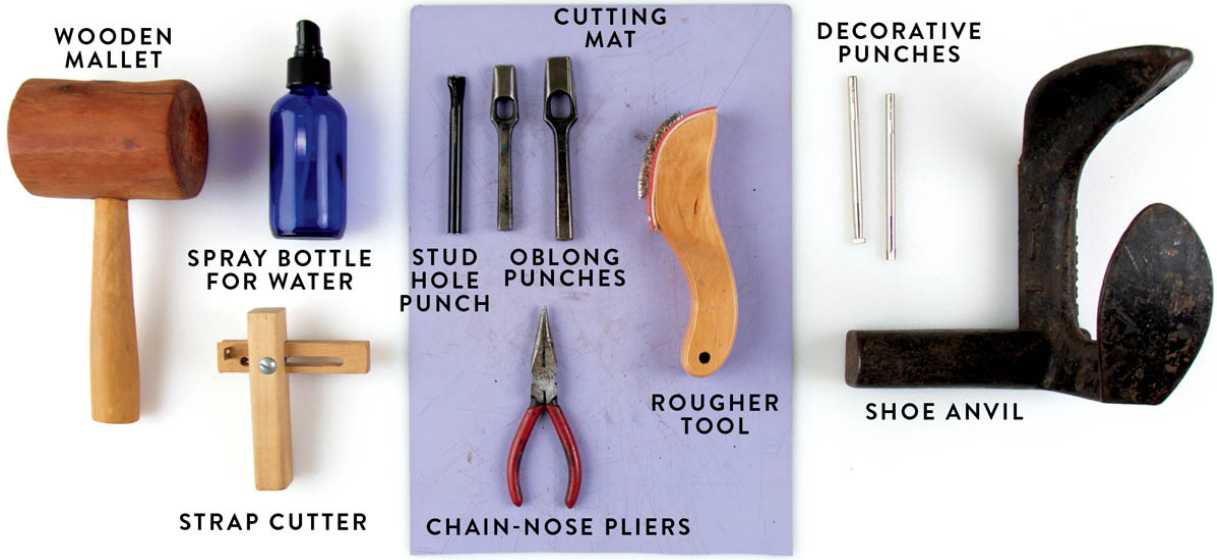
Rougher tool. This is a hand tool with lots of metal prongs, like a wool carder or a cat brush. Use it for quickly scratching up leather surfaces.

Oblong punches. These punches vary in the length of narrow rectangular hole they make from 1⁄3 inch to more than 1 inch. Use them for punching slots for straps to pass through and when placing a buckle.

Stud hole punch. Sometimes called a buttonhole punch, this punch creates a round hole with a slit to one side; this shape hole fits easily over a screw-back stud. This tool is handy if you use studs frequently, but you can easily get along without it if you have a large hole punch and hand-cut the slit.

Shoe anvil. Use a shoe anvil for setting shoe tacks, making midsoles, and hammering the insides of a shoe without crushing the upper. My favorite kind of shoe anvil sits on a tabletop, is made of cast iron, and includes several foot-size shapes to hammer against. Although it isn't like what we think of as a traditional flat anvil, it serves perfectly well to set rivets and hammer punches over, so if you have a shoe anvil you won't need a traditional anvil. You could also use a tool known

as a jack last, which consists of a cast-iron sole shape at the top of a pole that you can mount on the ground or a table. If you don't have access to either a shoe anvil or a jack last, a regular, flat anvil will prove usable as a surface over which to hammer to set rivets, hit punches, and join soles to heels.



Lasts. Shoe-shaped forms made of wood or plastic, used for building closed-toe shoes in order to achieve a desired shape. My technique is flexible, so your lasts can be a whole size smaller or larger than your foot. Some lasts come with hinges to allow you to remove them from your built shoes without damaging them. Any hinge style (or none at all) will work for the projects in this book, since you won't be making fully enclosed shoes.

Strap cutter. This small hand tool is used for pulling long, straight straps from a hide.

Decorative punches, letters, and numbers. Use these for stamping decorative motifs, words, and dates into the leather.

Chain-nose pliers or lasting pliers. Use these for pulling out nails, breaking off knife blades, and pulling leather around a last when making closed-toe shoes. Lasting pliers combine pliers and hammer into one tool so you don't need to switch back and forth, but regular pliers will work fine.

Electric belt sander. I use a tabletop belt sander with a 4-inch-wide sanding belt. These sanders often come with a disc sander attached, but you won't use that part. For the projects in this book, use 80- or 100-grit sandpaper. I have tried many brands of sanders over the years and have found that the price (ranging from $70 to $200) reflects the quality. Also, the more amps the sander motor is rated for, the better for use in shoemaking. I do not recommend using a handheld orbital or belt sander, or a Dremel tool with a sanding attachment. This is because you will need to hold the shoe with both hands; it's too difficult to get the pressure you need with a sander in one hand and a shoe in the other. Even if your Dremel tool is securely mounted to a table, its small surface makes it difficult to apply enough steady pressure.

Sewing needle with a dull tip. A dull tip is the key to locating your prepunched holes without your needle sticking into the leather.

Spray bottle with water. This will come in handy when making midsoles, stamping decorative punches into leather, or keeping

leather damp while you wet-form it on a last.

Stacked leather heels. Sold at some cobbler suppliers, these come in different heights and sizes. They are sometimes called stacked heel bases, stacked heels, stacked leather heel bases, prestacked heels, or boot heels. As an alternative to buying stacked leather heels, you can make these yourself (see here).

Midsole leather. Use leather that matches the weight of leather you used on the upper of your project (usually 4/5 ounce). Vegetable-tanned leather works best because it takes clear impressions (see here). Use parts of the hide that would otherwise go unused due to brands, stretch marks, or wrinkles, since the midsole won't be seen in the final product.

Brass clinching nails. Clinching nails travel through all the layers of the sole. When the tip of the nail hits the anvil, it doubles back like a staple. Clinching nails can be used to tighten up the layers around the sole edges or to pinch together strap connection points. Look for clinching nails that are just a bit longer than the thickness of the layers you are going through. I prefer 2-ounce brass hand shoe tacks from D. B. Gurney; they are 7/16 inch in length and the brass wears down at the same rate as the leather sole, which is ideal. Iron clinching nails work as well.

Heel nails. To secure the heel, threaded nails with a flat head are best. Threaded nails have small lines or ridges that help them grip the material so they stay put. Almost any small nail will work, as long as it exceeds the thickness of the outsole and

goes into the heel block. I use ½-inch iron or brass nails from D. B. Gurney.

Lasting nails. These nails will hold your leather to the last while the leather dries. Many nails can serve this purpose, but some work better than others. You want the nail to be sharp enough so that when you place it on the leather, it will stay while you grab your hammer or lasting pliers. Blackbird brand lasting nails (18 mm long and 1.1 mm thick) are popular, and the bright steel version won't stain vegetable- tanned projects the way steel nails can. You can also use small (17-gauge) wire nails available at hardware stores. I often use 5-ounce Star brand hardened steel hand shoe tacks. These thinner, shorter nails are good to use with finer materials and pointed women's shoes. I don't recommend using brass tacks, as they are a bit expensive and you go through many during the lasting process.

Thread. Artificial sinew or waxed linen thread are good choices.

Edge paint. Both clear and colored acrylic edge paints seal sole and heel edges nicely. You can also use a colored edge coat for a nice effect. I like Fiebing's Edge Kote or Eco-Flo's Edgeflex.

Leather conditioner. Use this on vegetable-tanned leather to soften and slightly darken the natural leather. I make my own using a mixture of beeswax, beef tallow, and almond oil.

Carnauba crème. This protective wax leaves vegetable-tanned leather polished and somewhat weather-resistant. Apply it with a cloth and then buff with a shine cloth.

Choosing Leather

Leather's durability, stretch, and ability to take different shapes make it a satisfying material to work with. These qualities, assisted by the tanning process, are largely due to the fact that leather is, indeed, animal skin. Its function is to protect and flex as an animal moves and grows. Because of its strength and versatility, I love working with leather. But it is important to remember that each hide once belonged to a living creature. Keeping this in mind helps me not take the material for granted.

Getting the right type of leather is key to the success of your project. When I started making sandals, I repeatedly brought home leather that was too thin and flexible for what I was making. Eventually, I started bringing small leather cuttings along to the store to make sure I got the thickness and stiffness that I was after. Before you purchase leather, read the following pages to learn about the different weights, finishes, and types. Understanding each detail will help ensure that you find the best option for each part of your shoe.

ABOVE: *Leather listed from left to right: latigo, chrome-tanned, metallic, nubuck, patent, oil-tanned, vegetable-tanned*

Tanning Processes

Vegetable-tanned. This kind of leather is tanned using natural tannins from materials such as tree bark and leaves, so it is the most environmentally friendly leather choice. The resulting leather comes in shades of tan ranging from nearly white to deep honey; the color gets darker and softer with time and

exposure to sun and oils. Vegetable-tanned leather is a great choice if you plan to use leather dye or utilize wet forming.

Latigo and bridle. These leathers, which we associate with the American West, were developed for outdoor use. During the tanning process, oils and waxes are added to the leather, giving it a supple yet hard-wearing quality that is great for sculptural projects such as belts, bags, and saddlery. Latigo or bridle leathers work great for sandal footbeds and even for sandal uppers if you can find thinner weights. They come predyed in traditional colors ranging from black and brown to reddish and tan.

Chrome-tanned. The chemicals involved in the chrome-tanning process soften the leather and give it a soft, drapable quality that lends itself to clothing and upholstery projects. As a result, it is also known as garment leather. Chrome-tanned leather is durable and long-lasting; this process offers the widest array of vibrant colors, though they will fade slightly with time.

Suede. Suede is produced by rubbing the interior (nonskin) side of a hide to a velvety finish. It can be made from a variety of animal hides and is available in a range of thicknesses. Although some people worry that suede is hard to clean, I like the velvety texture because it actually hides flaws quite well and results in rich, light-absorbing colors.

Weights

The “weight” of leather actually refers to how thick it is, rather than to how much it weighs. Very generally speaking, 1 ounce

of leather equals 1/64 inch in thickness. Because no leather cut is perfectly uniform, the weight is often presented as a range, as you see in the examples below.

2/3 ounce. The thinnest leather you will find. It is good for lining with other 2/3 ounce leather, either for sandal straps or for making closed-toe shoes.

3/4 ounce. You would only use this lightweight leather for a sandal style consisting of large pieces, such as a slide made from one large strap. The relatively thin leather bends and conforms to the contours of your foot more easily than a thicker leather would. Similarly, it forms easily around a shoe last, so it is an ideal leather weight for making closed-toe shoes.

4/5 ounce. The ideal thickness for a wide variety of sandal straps.

5/6 ounce. This also works for sandal straps, but is bulkier than 4/5 ounce leather.

7/8 ounce. This is a bit too thick to use for sandal straps but is on the thin side for footbeds. If you use 7/8 ounce leather as your footbed, consider adding a midsole so you don't feel the sandal straps underfoot.

8/9, 9/10, and 10/11 ounce. All are ideal weights for footbeds. This heavyweight leather will hide any unevenness underfoot and make a comfortable place for your foot to land.

ABOVE: *Thin Gold Leather Lined with Thin Vegetable-Tanned Leather*

Responsible Sourcing

You can be a conscientious leather consumer by exercising some of these strategies:

- **Source from US tanneries** that sell their extra hides to leather retailers and cobbler suppliers. Look for hides from Hermann Oak Leather Company, S. B. Foot Tanning Company, or Horween Leather Company.
- **Buy used.** Find leather at an upcycle craft store, reuse leather cut from abandoned furniture or clothes, and shop at thrift stores, estate sales, and garage sales.
- **Ask a local leather-goods maker** or company if they have scrap they're looking to get rid of. Luckily for sandalmakers, the pieces you need are often small.

- **Use the leather you buy efficiently.** Share a large hide with friends; cut out larger pieces first; and save scraps for smaller projects such as sandal straps, bracelets, and collars.

I'm always on the lookout for vegan alternatives to leather. Most often vegan leathers are thin sheets of vinyl, which is petroleum based and thus not without its own environmental impact. There are some interesting exceptions (like Piñatex, a leather alternative made from pineapple leaf fibers) but sourcing small quantities is difficult. Efforts are currently underway to make vegan leathers from things like mushrooms and kombucha! I excitedly await the day when these leather alternatives are market ready.

ABOVE: *stiff 7/8 ounce soling leather for outsoles*

Patterns

Deciding which style you want to make first may be the hardest part of this whole process! Once you've chosen a design, you'll need paper patterns for each component, including the sole and all of the upper straps. There are patterns in the back of this book for each of the projects, or you can trace a beloved sandal you already wear or create a new pattern by following the instructions on the next page. Each paper pattern piece is meant to be flipped over, so one side of the paper will be for your right foot and one for your left foot. Mark the sides *R* and *L* to help you remember.

When my workshop students encounter my patterns, they usually start to look for their shoe size. I try to get them to ignore size markings and instead see the patterns as shapes. Any paper pattern can be added to, subtracted from, extended, have sections pinched out, and so on. Even shoes factory-made to "standard" sizes vary in fit; try to see past your number size and look instead for shapes that you like. Feet are all so different. Be open to altering your patterns as much as necessary to fit your foot and your design preferences.

Your sole pattern should err on the larger side. I recommend leaving ½ inch extra space in front of your toes and ⅜ inch extra space behind your heel. This is because you lose some of the length as you stack the layers and shape the sole to the contours of your foot. If your sole pattern proves too long in the end, you can always cut and sand it down.

Your upper patterns, on the other hand, will not be sanded down and therefore should be accurate. When choosing your

upper patterns, place your foot on a low stool and drape different pattern pieces over your foot. Make sure the pattern pieces hug the curves of your foot and extend 1–1½ inches underfoot so that they have enough surface area to hold the glue.

Patterns from Existing Shoes

I started my sandalmaking journey by re-creating my favorite sandals and making alterations. It was a wonderful way to learn because I had something to reference. If you have a pair of sandals that you love, use them as a template for a new pair. Place the chosen shoe upside down onto paper and roll it from one side to the other as you trace with a pencil. Cut out the

shapes and drape them over the original shoe to see how faithful your pattern is. Your pattern pieces won't be perfect at first; make modifications as needed. And remember to alter the design to make it your own!

Making Patterns from Scratch

Draw shapes onto paper that resemble the design you wish to create, then cut the shapes out and drape them on your foot. Look closely and decide where, for example, you need the straps to be longer, shorter, thicker, or curvier. Make little arrows on the paper where you want more material, and mark a line where you intend to cut. Now trace the pattern pieces onto new paper, adding and subtracting as needed and making corrections until you are satisfied. Sometimes this takes many iterations before it resembles what you had envisioned.

Folk Shoes

The history of handmade footwear is full of surprising repetitions, innovations, embellishments, and adaptations. A few types of footwear — including clogs, sandals, cloth shoes, and boots — show up repeatedly around the globe because of their utility and economic use of materials. Here are some folk shoes that I find especially inspiring. Special thanks to Shoes or No Shoes, a museum in Belgium, for keeping such an extensive archive and for sharing these images.

ABOVE: ***ITALY***

MID-TWENTIETH CENTURY

One-piece leather opanke, *or peasant, shoes*

ABOVE: ***BURMA***

LATE NINETEENTH CENTURY

Cloth-covered men's slippers, with straw and cotton uppers, straw insoles, and sun-dried hide soles

ABOVE: ***NETHERLANDS***

MID-TWENTIETH CENTURY

ABOVE: ***KENYA***

LATE TWENTIETH CENTURY

Sandals from World War II, with uppers made of oil cloth straps and wooden soles

Men's sandals from the Maasai tribe, made entirely from car tire and decorated with a serrated edge

ABOVE: ***GUATEMALA***

LATE TWENTIETH CENTURY

Women's leather sandals

ABOVE: ***FRANCE***

EARLY TWENTIETH CENTURY

Child's sandals from World War I, made with felt uppers and wooden soles

ABOVE: ***BRAZIL***

EARLY TWENTIETH CENTURY

Girl's mules, made with leather uppers and wooden soles

ABOVE: ***VENEZUELA***

EARLY TWENTIETH CENTURY

Alpargata sandals, made with cotton uppers and leather soles

ABOVE: ***INDIA***

MID-TWENTIETH CENTURY

Women's sandals, made of leather with gilded wire embroidery

ABOVE: ***TURKEY***

EARLY TWENTIETH CENTURY

Women's leather opanke shoes, with mirrors, coins, and pom-poms

ABOVE: ***MEXICO***

EARLY TWENTIETH CENTURY

Women’s sandals, made with patent-leather upper straps and leather soles

ABOVE: ***PORTUGAL***

MID-TWENTIETH CENTURY

Women's dress clogs, made with tooled leather and wooden soles, with rubber reinforcements on toe and heel

CHAPTER 2

The Sandalmaking Process

Once you've gathered your tools and chosen a design to make, you're just about ready to begin. Before you start working, make sure you have a sturdy table, bright light, and very few distractions. Making a pair of sandals can take anywhere from 4 to 8 hours. You may want to set aside a few hours to make the upper and another few hours to prepare the outsole, attach it, and finish the edges. This chapter explains the entire sandalmaking process. Read through the techniques carefully before you start working on a project, and as you make your sandals refer to the detailed instructions.

Making Sandal Uppers

The term upper *refers to the entire sandal (straps and footbed) before adding an outsole. Creating your uppers,*

and making sure they fit well, will take the majority of your sandalmaking energy. Enjoy the process!

TRACING

Use a permanent marker to trace onto light leathers and a pencil or an awl to trace onto dark leathers. Always trace on the skin side of the leather. This way, you'll know what flaws, like cattle brands, scratches, or deep creases, to avoid.

ABOVE: *Tracing*

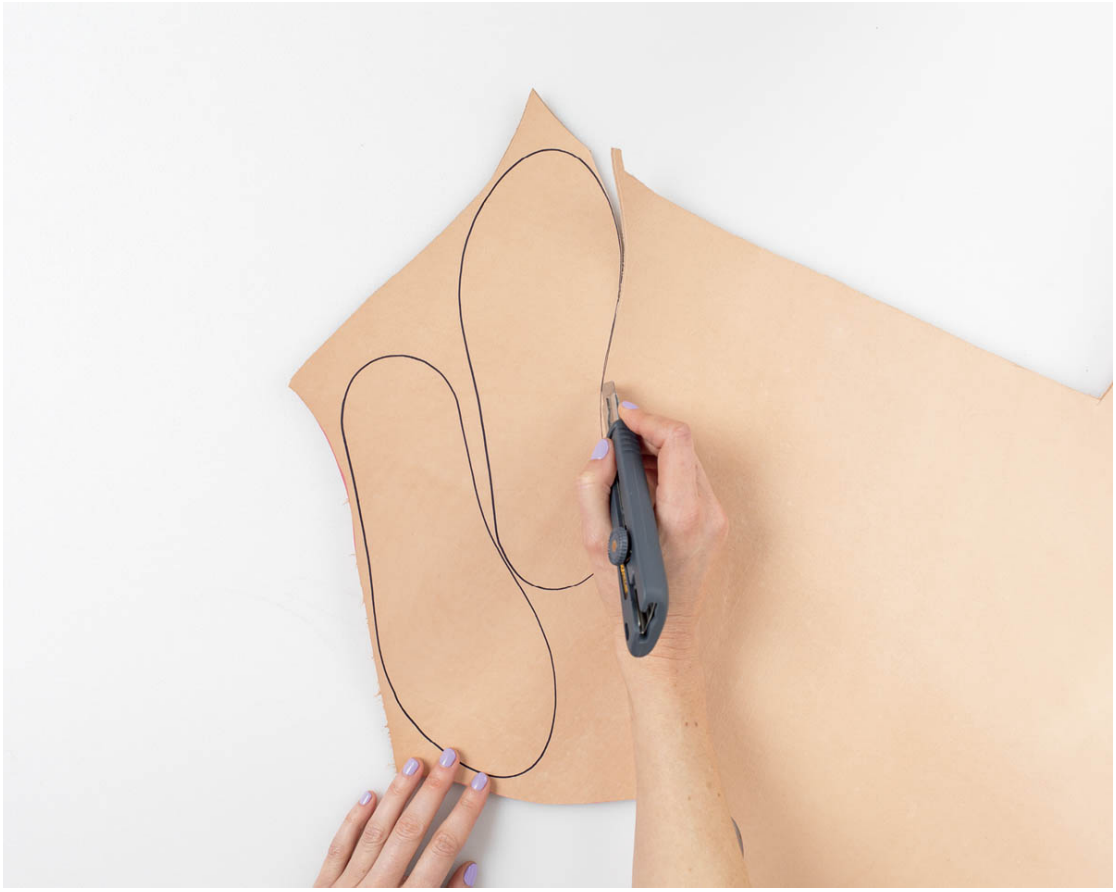
1. Trace the paper sole pattern for your left foot onto thick footbed leather. (This is the leather you will stand directly on top of.) Flip the pattern over to trace a right foot shape. Be extra sure you trace both right and left sole shapes — cutting two pieces for the same foot is an extraordinarily common mistake to make!

2. On the thinner leather, trace the toe strap pattern for your left foot. Then flip the pattern over and trace the toe strap pattern for your right foot.

3. On the same thinner leather, trace one ankle strap pattern. Flip the pattern over and trace a second ankle strap pattern. If your style has more pattern pieces, trace those now, too. Set your patterns to the side.

CUTTING

1. Place the footbed leather on your cutting mat or other safe surface, and make sure you have drawn both a left and a right sole shape. Start to cut the first sole shape, but don't try to cut all the way through in one pass. Make your first pass by lightly drawing the knife along the traced pattern line, and cut again with more pressure on the second and third passes. Do the same on the second footbed.



ABOVE: ***1.*** *Cutting*

Tip: *When cutting out your footbed shapes, cut right on — or just outside of — your drawn line. This ensures your pieces will be large enough. You will sand or trim off the line later.*

2. For the thinner upper leather straps, use scissors to cut curves and a knife against a straightedge to cut straight lines. For all the straps, cut just *inside* the drawn line so the resulting piece is a clean shape with no pencil or marker lines remaining. It is easier to lose a sliver from the edges of your piece (you won't miss it) than it is to go back

later to remove the marker line with a knife or scissors, which can result in an unsteady edge on your sandal straps.

Notes on Cutting with a Knife

- Hold the utility blade as if it were a pencil, resting your fingers around the metal part rather than around the handle.
- Allow the hand holding the knife to rest on the leather or cutting surface instead of hovering in the air. This steadies your hand. Use your other hand to put weight on the material you're cutting.
- The number of passes you need to make with the knife will depend on the thickness of what you are cutting. Try to be patient. Always make the first pass very lightly, just setting down the line where you want it. You can go back with more pressure on the second and third passes.
- Cutting tight curves all in one pass can be difficult. Instead, cut one portion of the curve at a time, making long, sloping cuts and removing sections of leather as you go.

Notes on Cutting with Scissors

- You can cut medium- and lightweight leather with scissors easily. Steel scissors with a sharp tip are wonderful for getting into tight corners and removing hairy edges on leather.
- When cutting out your strap pieces, always cut inside your drawn line; otherwise you will have to go back and cut it again!

LINING

If you choose to make your upper straps using a thin leather, such as 2/3 ounce, I recommend gluing it to another thin leather. This will result in the perfect thickness for sandal straps or closed-toe uppers. Most shoemakers also sew the lining leathers together at the edges, but I find that glue by itself works perfectly well. Omitting the stitching also gives you the option of trimming your uppers later if you decide you want to adjust the shape.

If you're lining leather for sandal straps, you can line with any type of thin leather. If you're making material for the upper of a closed-toe shoe, I recommend lining only with a vegetable-tanned leather so the shoe will keep its shape.

1. To line leathers, trace your patterns on both the outer layer and the lining, but instead of tracing right at the pattern line, draw about 3/8" outside the line so you leave a "halo" around each side of each original shape. The extra space will give you room for error when you glue the two shapes together.

ABOVE: ***1.*** *Tracing*

2. Cut out all the pieces and apply a water-based leather glue or solvent-based shoe glue to all the surfaces you wish to join. Usually you would texturize surfaces before gluing them together, but I usually skip that step when lining since it can leave visible marks on such thin leather. Because you'll be joining the rough sides of both leather pieces,

there will be enough natural texture to let the glue work well. Wait until the glue is tacky, about 5 minutes, then slowly and carefully join the leathers together. Try to avoid making any air pockets or wrinkles as you press the pieces together. Tap all over with a hammer to make sure the bond is tight.

3. Trace your pattern onto this double-layered piece and make your final cuts.

ABOVE: ***2.*** *Gluing*

ABOVE: ***2.*** *Hammering*

ABOVE: ***3.*** *Tracing to Trim Down*

ABOVE: ***3.*** *Cutting*

DRAPING AND MARKING

Now that you have your leather pieces cut out, it's time to mark where the straps will land on the footbed. This will determine where you cut slots in the footbed for the upper pieces to drop into. Keep in mind that this step deals with strap placement, but not yet fit. If you're using a heel block in your design and want to make your own stacked leather heel, do so now — following the instructions — before you start draping and marking.

Note: Only mark one footbed! Once the marks are punched out on the first footbed, you will transfer your dots to the other one so that the strap locations on the two footbeds mirror each other. Unless your feet differ significantly, I recommend sticking to the same strap placement for both shoes. Fit can be adjusted for each individual foot later.

1. With one of your footbeds on a low stool or bench, place your bare foot onto the leather. If you're using a heel block in your design, slide it underneath the footbed to mimic the heel elevation you'll be working with.

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2. Drape the leather straps over your foot, one piece at a time. Form the leather around your foot, allowing the straps to drape outward at first, so you can adjust the placement.

    - **Make sure each strap drapes over the foot evenly,** with enough material (1"–1 ½") on either end to wrap the

strap under the foot and, later, to hold glue and possibly nails.

- **Find the "sweet spot"** on your foot where each strap looks best.
- **For toe straps, try to cover the pinkie toe.** This placement looks right, holds the foot in place, and prevents tripping, which can happen if the toe strap is placed too far back.
- **Make sure the layers where hardware will go** are lined up correctly and that lace holes are aligned on both sides (see here).
- **Make sure the straps hug the curves of your foot.** For example, check that the straps are snug against the back of your ankle and snug at your pinkie toe.

3. When you're satisfied with how your straps land, mark where the corners of each strap meet the footbed. Lean your body over the foot you're working on, hold the first strap in place with one hand, and with the other use a pencil or awl to mark dots on the leather, about 3/8" from the edge of the footbed.

4. Once you've marked the first strap's four dots, drop that strap to the side. Repeat steps 2 and 3 with the next strap(s).

5. Check that all your dots are about 3/8" from the edge of your footbed. If they are too close to the footbed's edge, for instance, scoot inward when you punch them out with the hole punch.

ABOVE: ***3.*** *Draping and marking*

DOTS AND SLOTS

1. Use a rotary hole punch on the very smallest setting (2 mm) to punch out the dots. To make a cleaner hole and to protect your tool, place a small leather scrap underneath the piece you are punching.

ABOVE: ***1.*** *Punching holes*

2. Place the hole-punched footbed face-to-face with the opposite footbed. Through the punched holes, use a pencil or awl to mark dots on the second footbed. This method ensures that the strap placements are the same on both shoes. Punch out the marks as described in step 1.

3. To create the slots where each sandal strap will drop in, you will connect each pair of punched holes with two parallel cuts. Sketch a line from the left side of the first hole to the left side of the second hole, and another line from the right side of the first hole to the right side of the second hole. Arc the lines so they mimic the nearby curve of the footbed edge. You want the space between each pair of lines, all along their length, to be the same as the diameter of the holes (about 2 mm), no more.

4. Where the first slot will be, make a very light cut with your knife along one of the lines from the first hole toward the second hole, but stop just short of the second hole. Make two or three more passes with the knife until you have cut through the leather, but stop short of the second hole each time. Move over to the other line between the holes and cut along it, once again stopping short of the second hole each time. Finally, turn the entire footbed around and, from each side of the second hole, start cuts that meet your first pair of cuts. This sequence, “pulling” your cuts from each hole, prevents you from accidentally cutting through and past the second hole. Pop out the small strip of leather.

5. Repeat steps 3 and 4 for each slot.

Note: Cutting the slots may seem like a scary step that requires ultra-precision. It is actually quite forgiving! Once you pull your leather straps into place, you won't be able to see the inside of the slot — or even the outside of the slot, which most likely will be covered by the strap. So just do your best.

ABOVE: ***3.*** *Drawing the cut slots*

ABOVE: ***4.*** *Cutting slots*

Punches

In some cases, you may choose to use an oblong punch to cut out your sandal strap slots. This is especially efficient when you're making a sandal with many small straps that are all the same width.

Additionally, small individual hole punches can reach spots your rotary hole punch may not be able to.

- Use a wooden or rawhide mallet to hit the punch through your leather. This way, you avoid making a loud clanging sound and won't dent your metal hammer by hitting a metal tool.
- Always place your leather over some heavy scrap leather so the punch passes through cleanly and stops in the scrap. This protects the punch from becoming dull. Depending on the sharpness of your punch, it may help to rock it back and forth as you hit, allowing the edges to "bite" through the leather at a slightly different angle each time.
- Punching over an anvil is ideal, but if necessary you can punch over a plastic cutting mat instead. No matter what punching surface you use, set it on a sturdy tabletop over the table leg or use the floor for a sturdy work surface.

ABOVE: *Hammering punches*

Decorative Stamps

If you want to make designs in your project, you can use metal stamps such as letters, numbers, or decorative motifs, which are

available at any leather craft store.

Practice your design on some scrap leather first to get a sense of placement and how hard to hit. For vegetable-tanned leather, use a spray bottle or a damp cloth to moisten the leather for a deeper impression. For any other leather, just a few heavy taps of the mallet will do. Again, stamp over an anvil or sturdy table for best results.

FITTING

Now you can pull your straps into their slots. If it's a tight squeeze, clip the end of a strap at an angle so it can enter the slot, or grab the strap with pliers. Don't fret if some of the slots appear to be wider than the strap itself; once you adjust the strap to be positioned at an angle, this "extra" space will disappear.

1. Slide your sandals onto your feet. Sit somewhere you can kick your foot over the other knee, giving you access to tug on the tabs, the ends of the straps underneath the footbed.

2. If any strap is so long that it overlaps with other straps underneath the footbed, clip it shorter with scissors. Make sure you don't cut any strap too short, though; you want to maintain an underfoot tab at least 1" long.

3. Continue adjusting the straps to your liking, and tape each strap end with its own piece of masking tape. (Using one piece of tape for each tab allows you to adjust one tab at a time without disturbing the others.) Most likely these tabs will need further adjustment.

4. When all straps are taped, stand with your weight on the footbeds and see what puckers or pinches. Readjust as necessary. With each strap you will adjust how far you pull it through the slot and the angle at which the tab slants underneath the footbed. The goal is to make the straps fit

your feet to the desired tightness and to get the angles just right. If you're using a heel with your design, slide your heel block underfoot to see if the height alters the way the straps fit.

Your adjustments are finished when:

- The tab of each strap underneath the footbed is long enough (about 1") to hold sufficient glue.
- The overall fit is snug, but not tight. Nothing should look — or feel — as if it is being squeezed! Keep in mind that once the straps are glued into the layers, they will be a tiny bit tighter than they currently feel.
- The toe strap is loose enough that you can wiggle one finger in — but not so loose that you can fit two fingers in side by side, and not so tight that you can't fit any finger.
- The ankle straps are snug against your heel and land in a comfortable place.
- The fit of both shoes feels the same. Make sure that one isn't tighter than the other, or that one isn't shifted or skewed differently than the other.

ABOVE: ***1.*** *Preparing to Fit*

ABOVE: ***3.*** *Adjusting the tabs*

Darts

Darts are so helpful when working with wider toe straps. These cutouts on the underside provide a subtle curve to the visible upper portion. To make a dart, pull the straps through the slots and adjust until they fit comfortably, then cut out a generous triangle shape from the tab underfoot. This allows the bottom part of the tab to land somewhat flat underfoot, while letting you pull the top of the tab at a much steeper and tighter angle. The deeper into the tab the cut reaches, the more effective the dart will be. After cutting your darts, pinch together the resulting two tabs when you tape them down (as shown at far right on the next

page). If you cut a dart but tape the tabs without pinching them together, it won't improve the shape or fit of your straps.

ABOVE: *Darts Cut from Tabs Underfoot*

ABOVE: *Toe straps from above, before and after darts are cut*

ABOVE: *Toe strap tabs underfoot, before and after darts are cut*

OUTLINING

Once the shoes are taped to your liking, you are ready to mark up the footbed with a permanent marker. These outlines will make it clear where to glue down the tabs.

1. On the underside, remove the tape from the first tab carefully so the tab doesn't shift.

2. With a permanent marker, make a clear outline on the underside of the footbed where the tab lands. Also mark a line on the tab itself where the strap emerges out of the slot. That way, if the tab shifts, you will know how to correct it.

ABOVE: **2.** *Outlining*

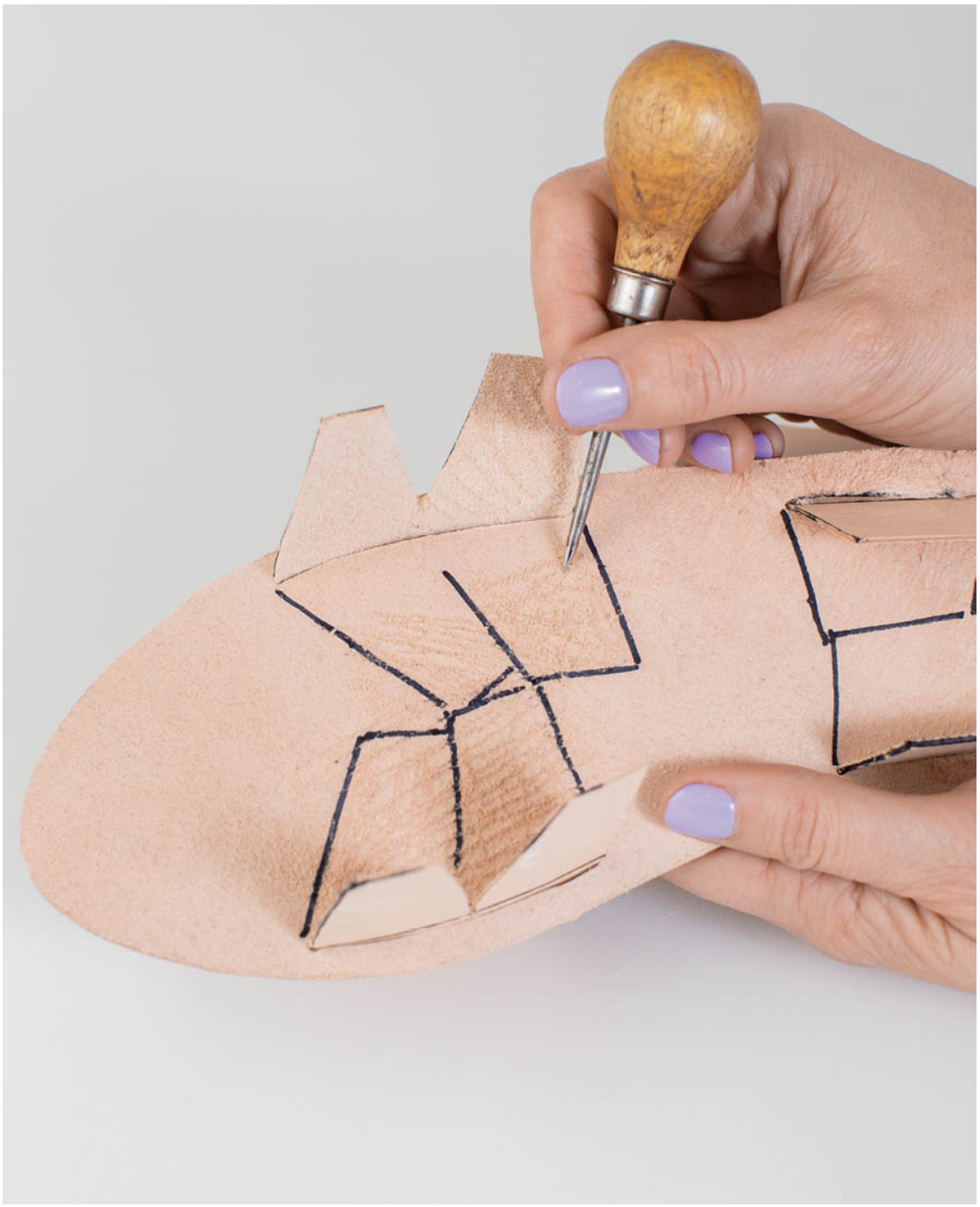
3. Repurpose the tape you removed to hold the tab like a hinge. This should give you access to the surfaces underneath the tabs for scratching and gluing.

4. Repeat steps 1–3 with each tab so they all are clearly outlined and securely taped into place.

SCRATCHING AND GLUING

Now you want to create texture for all these surfaces so the glue adheres well.

1. With an awl or rougher tool, scratch crosshatch marks into all the undersides of the strap tabs. Also scratch this same texture into all the areas you've marked where you will glue down the strap ends. If the leather you're scratching is especially slick, give it extra texture. If the leather is already somewhat textured, you can skip this step.



ABOVE: ***1.*** *Scratching*

2. Apply glue to the underside of each tab and to the marked area where it will be glued down. Keep each tab and its

spot on the footbed apart and let them sit for at least 5 minutes, or until the glue is tacky. When the glue's color has become mostly translucent, it is time to join the layers. (If you touch one side and the glue comes off on your finger, it needs more time.) Carefully press each tab exactly where you want it to land, following your outlines.

ABOVE: ***2.*** *Gluing*

Tip: *I use water-based leather glue for this step because it is safe to use at my worktable and these tabs won't be exposed to as much wear and tear as the outsoles will. Feel free to use whatever glue you have.*

3. After you have joined all the tabs on both shoes, slip the shoes on and check that they fit as you intended (snug but not tight) and both fit the same (one isn't pinching or gapping more than the other). If an upper strap needs to be corrected, pull the glue bond apart with a pair of pliers. Add more glue, wait a few minutes, and place the tab in its corrected position.

4. When you are completely happy with the way the straps land on and fit your feet, you are ready to hammer the tabs and footbed together to secure the glue bonds. If you have a shoe anvil, pull your sandal upper onto it, with the bottom of the footbed facing up, and hammer all the tabs. If you do not have a shoe anvil, place the sandal upright over a hard surface, such as a sturdy table, and gently tap the tab areas from above the footbed while holding the straps out of the way of your hammer. In addition, you can put the shoes on and stand in them; your own body weight will compress the layers sufficiently.

ABOVE: ***4.*** *Hammering*

Notes on Using Adhesive

Most shoemaking projects will involve a few stages of gluing. I use a water-based leather glue for joining interior surfaces and a solvent-based glue for attaching outsoles and heels.

Water-based leather glues such as EcoWeld are vegan and safe to use indoors at your workstation. This is the best type of glue to use for lining leather with leather, gluing tabs down, and attaching your midsoles. Basically, you can use water-based leather glues for everything except attaching synthetic outsoles and heels. Always apply glue to both surfaces you wish to adhere and wait 5–10 minutes for the glue to become tacky. When it turns from white to clear, the pieces are ready to join.

When using a solvent-based shoe glue, work outside in a well-ventilated area. Apply glue onto both surfaces you wish to adhere, and be generous with the glue at the edges of your soles, as this is the spot that could someday come apart and create a gap at the edge of your shoe. Wait 5–10 minutes for the glue to become tacky. When it turns from shiny to matte, you are ready to join your pieces. Carefully place them exactly where you intend them to go. As with the water-based glue, if you make a mistake and wish to reposition the pieces, you will need to pull apart the layers with pliers, reapply the glue, and wait a few more minutes for it to become tacky. Press the layers together with your fingertips to adhere, and hammer over an anvil or a sturdy table to join permanently.

Both kinds of glue I use are considered contact cements and work best if the layers are compressed well. You do not need to wait for these glues to dry overnight. Pressure of any kind, especially wearing the shoes soon after making them, helps the

glue do its job. If any glue drops onto your upper, wait for it to dry, then peel it off. Do not rub it in or try to remove it while still wet.

Shoe glue works best in a warm environment. If you are in a cold climate, consider using a heat gun to help activate the glue before joining.

SKIVING OR MIDSOLES

You are now ready to address the sometimes not-so-subtle feeling of the tabs underfoot. There are two ways to solve this. If your upper leather is relatively lightweight (such as 3/4 ounce), you might not feel the tabs at all. In that case, you can skip ahead to Preparing and Attaching Soles. In most cases, though, you'll want to consider skiving (shaving) the tabs down so that they transition smoothly and you don't feel any edges through your footbed. Alternatively, if your upper strap leather is heavier (such as 5/6 ounce), you might consider adding a midsole: an extra leather layer with cutouts to accommodate the tabs. Creating a midsole requires a shoe anvil. If you don't have a shoe anvil, the skiving method works well for all the projects in this book.

ABOVE: *Underfoot tabs*

Skiving

Skiving is the technique of shaving down leather to make it thinner. This is one way to fix the uneven feeling of strap tabs

underfoot; skiving the tabs makes it so you can't feel them at all. Another common use for skiving is to thin out a strap where it holds a buckle. Because the buckle strap needs to double back on itself, it is sometimes necessary to skive this area to prevent the strap from becoming too bulky. The directions that follow will teach you to skive to address the unevenness of the tabs underfoot.

Some people use a curved metal skiving blade for this process, but I find this tool a little hard to control and the blade itself difficult to replace. I prefer using a utility knife blade extended about 2 inches (a bit longer than usual), then bending and arranging the shoe I am skiving so I can scrape at the correct angle with the knife.

Skiving is a bit like whittling; both processes involve careful and gradual removal of the material. It might be your first time making use of this particular motor skill and will take some practice before you become confident. Once you have some skiving experience, it's a very satisfying skill to have at your disposal. Please proceed safely.

1. Before you begin skiving the tabs, try the princess and the pea test. Put on your half-made shoes, stand on a flat surface, and close your eyes. Try to pinpoint any areas of discomfort. Generally you will only be able to feel the tabs under the ball of your foot, near your toes, or at your heel. Make note of where, exactly, you feel the tabs, and focus your skiving efforts there. Although the rest of the areas don't need as much attention, it's still a good idea to shave down the edges of these tabs to make an even surface to join to the outsole.

2. Consider snapping off the tip of your utility knife so you have a sharp blade to work with. Extend the blade about 2" and lock it.

3. Sit with your legs crossed and the sandal upper in your lap, pulled close to your body.

4. Place your nondominant hand inside your sandal upper. This gets your hand completely out of the way of the blade and enables you to use your fingertips to apply pressure on the inside of the spot you are skiving. This pressure is essential to getting a smooth shave.

5. Position the lower portion of the blade, rather than the tip, on the part of the tab you want to carve away. Slowly and carefully cut toward your body. It may frighten you at first to cut toward yourself instead of away, but I find I have more control this way and therefore it feels safer.

6. Constantly reposition the upper to provide the best access to each area you plan to skive. As you work, run your fingertips over the tabs to feel if they are transitioning smoothly or if there is still an edge that needs attention. Never cut the part of the tab coming through the slot. Doing so would weaken the leather at that crucial point.

ABOVE: ***5.*** *Skiving*

ABOVE: ***6.*** *Repositioning the Upper*

Making Midsoles

As an alternative to skiving, you may choose to make a midsole. This layer will not be seen, so this is an opportunity to use up “bad” leather: anything with brands, wrinkles, or marks. What is important is for this midsole leather to be about the same thickness as your upper, so use approximately 4/5 ounce. Vegetable-tanned leather works best because it takes the clearest impressions of the tabs when the layers are gently hammered together. Other leathers can work well, too, but you may want to test how well the indentations show up.

1. Trace a right and left sole pattern on your midsole leather, adding a ⅜" halo all the way around. This gives you room for error when taking the tab impressions in step 4. Cut out the midsole shapes with scissors.

2. Slide your sandal upper onto the anvil with the tabs facing up.

3. Dampen the smooth side of the midsole leather with water from a spray bottle or a quick run under a faucet. Center the damp midsole (smooth side facing down) over the upper so that the midsole overhangs the upper by ⅜" all the way around.

4. Begin with the tabs at the top of the sandal (the half toward the toe end). Make sure the tabs are fully supported underneath by the anvil. With your hammer, tap together the layers of leather, seeking out the edges of the tabs. You are creating an impression of the tabs on the midsole layer. In order to get a clean impression, you must hold the midsole steadily in place without it shifting while you hammer. Once you've hammered all around the tab areas on the top of the sandal, peel the layer back and look at the impressions you've made. Most likely, your lines will be very clear. Outline these lines on the smooth side of the midsole leather with a permanent marker, since the lines may become harder to see as the leather dries.

5. Cut these tab shapes out of the midsole with your knife. Your cuts can be imperfect as they will be hidden within the layers of the sandal; in fact, err toward cutting away more rather than less, as you want this layer to be able to fit on the footbed easily.

   Tip: The process of cutting out these tab shapes is more forgiving than it seems. If you cut too much away, you can insert a small piece of leather in the gap and you won't know the difference. If you cut too little and the midsole overlaps with a tab, simply mark where you need to remove more material and do so.

6. Once these first areas are removed, check that the midsole fits onto the sandal well. Trim away more leather if needed. With the midsole lined up again on the sandal, slide the sandal onto the shoe anvil so that the lower tabs (at the heel end) will be supported by the anvil. Repeat steps 3–5 with the bottom half of the sandal.

7. Check that the entire midsole easily fits into place. Then repeat steps 2–6 for the second sandal.

8. When you are happy with both midsoles, use an awl or rougher tool to scratch up the sides that will be glued to the uppers. Also give texture to the bottom of each footbed, making sure the outer edges are textured, as those are the places that could someday begin to gap if not adhered well enough.

ABOVE: ***1.*** *Tracing Midsoles with a Halo*

ABOVE: ***4.*** *Hammered midsole impressions*

ABOVE: ***6.*** *Creating the impression of the ankle tabs*

ABOVE: ***6.*** *Midsole with top shapes removed and bottom impressions made*

9. Apply glue on the top of the midsoles and the bottom of the footbeds. Let sit for about 5 minutes, then carefully join: hold the upper upside down in your lap or on the anvil and slowly lower the midsole onto it, touching first in the middle and lowering the toe and heel into place. Remember, the glue is very strong and bonds on contact, so make sure to let the parts touch only when you're ready.

10. Hammer over the anvil to join the layers. Be sure to hammer all around the top edge, making sure the layers are compressed well. Use scissors or a knife to remove the extra midsole material around the edges.

ABOVE: ***10.*** *Trimming midsole*

ABOVE: *Finished midsole*

Preparing and Attaching Soles

Congratulations on making your upper; your shoe is starting to come together! Now it's time to consider your soling options. The outsole is the layer that touches the ground. I use two different types of outsoles in my practice: One is a casual, foamy rubber sole that produces a lightweight and cushy feel. The other outsole I use is a heavy leather sole that is quite stiff.

I shape it with water to give it character and usually pair it with a small or medium stacked leather heel. Both techniques create lovely, comfortable shoes.

ABOVE: *Preparing to join the upper and midsole to the leather outsole and heel*

Rubber Soles

Rubber soling, or synthetic soling, often comes in sheets in a variety of thicknesses, colors, and textures. It is also sold by the pair in foot shapes, often in large men's sizes that can be cut down to smaller sizes. Whatever you find will be composed of a mixture of natural latex and synthetic components, which will need to be glued with a solvent-based shoe glue.

PREPARING RUBBER SOLES

1. Trace the sole pattern for both feet onto the flat side of your synthetic soling material, leaving a halo of about ½" around the shapes. This extra margin will make it easier to join the outsoles to the uppers. Be careful to trace both a right and left! Roughly cut out the rubber patterns with a knife.

2. Give texture to the bottom of your sandal uppers with an awl or rougher tool. The outer ½" needs to be especially rough to prevent the outsoles coming apart with time and wear. As you scratch, be careful not to peel up any of the tabs that you glued down in previous steps.

3. In a well-ventilated area, outdoors if possible, set down a piece of scrap paper to catch any stray shoe glue. Apply a generous coating of solvent-based glue (see here) to the flat side of both rubber soles, all the way to the edges, and to the bottom of both sandal uppers. Let all the pieces sit for 5–10 minutes, until the glue is tacky and no longer shiny. Then add a second round of glue, if you wish, to ensure an especially strong bond. (For more specific drying details, refer to the instructions on the adhesive you are using.)

ABOVE: ***1.*** *tracing with a halo*

ABOVE: ***1.*** *rough-cut outsoles*

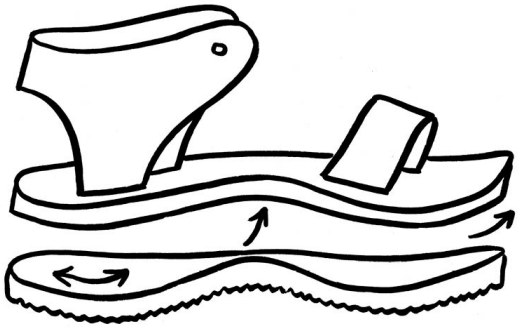
JOINING RUBBER SOLES

Because synthetic soling is flexible, you can control the way the outsole attaches to the upper, which makes it possible to create a more comfortable and supportive shoe. You can modify the shape of the sandal's toe, arch area, and heel. Doing this well takes practice, but even on your first pair you should be able to achieve some curves that will result in a good-looking shoe.

1. Join each upper to its outsole one portion at a time. You only get one chance to join these without having to add more glue, so be careful not to put them together too hastily. Hover one sandal upper over the outsole and first allow only the widest part of the toe area to touch the sole while you continue to hold the heel and tip of the toe areas up off the sole. Then, instead of lowering the toe down to the outsole, lift the rubber *up*, curving it upward at least ½" until it meets the toe. This creates a toe spring.

2. You can use this same technique to create arch support. In the middle third of each sandal (or a smidge farther back) along the inside edge, lift the rubber up to meet the leather. Use your fingertips to push the footbed down in the areas surrounding the lifted arch. In effect, you are sculpting the shoes to force some nice curves into them. Believe me; it will work!

ABOVE: ***1.*** *Joining with toe spring*



ABOVE: ***2.*** *Joining with arch support*

Tip: *In addition to looking cute, a toe spring helps keep your foot in place, helps you not to trip, and prevents rocks from entering your sandal.*

3. Gently join the heel areas. You can create a cupped shape for the heel of your foot to rest in by pressing down in the center of the footbed's heel area while lifting the edges of the soling heel upward around it.

4. When you are happy with where the upper landed on each outsole, compress the layers well. There are a few options for how to do this:

    - Press the upper onto the outsole with your fingertips, making sure it bonds well in all areas.

- Put the shoes on and let your body weight compress the inside areas.
- Set the shoe upside down on a shoe anvil and hammer the undersides.
- Set the shoe right-side up on an anvil or over a sturdy table and hammer along the top outer edge of the sandal.

ABOVE: ***3.*** *Curves of the Shoe*

TRIMMING RUBBER SOLES

- If you plan to sand the edges, your trimming does not need to be perfect because the sander will smooth out any imperfections. Place the sandal on a cutting surface and use your knife to remove the excess rubber material. This may take several passes with the knife.
- If you don't plan to sand your edges, you can actually get a very clean line by hand trimming, but this takes some practice. Make sure the blade in your knife is sharp, and with your nondominant hand, hold the sandal close to your body while you sit. While holding the upper straps out of the way, enter the blade into the rubber perpendicular to your leather footbed edge. Carefully pull the blade around the edge of the entire sandal, slowly and steadily (see photo at right).

ABOVE: *Trimming rubber soles*

Stiff Leather Soles

Before the age of synthetic materials, all shoes had outsoles made of leather, wood, or woven fiber. Today leather outsoles are most common among designer brands and handmade shoes. Soling leather is tanned and treated to be stiff and somewhat weather-resistant. The smooth leather soles can feel slick at first, so be careful when taking your shoes out for their first walk. I encourage you to initially scrape your leather-soled shoes along the concrete to create some traction. You may choose to protect this leather outsole with a thin layer of rubber someday, or you can leave the leather to wear down over time. (It should take more than a year to wear through.)

PREPARING LEATHER SOLES

These outsoles only need to be cut out roughly; it is okay if the edges are imperfect. Later you will sand the edges. Cut just outside of your outline because the soles will shrink a little when you shape them with water.

1. Trace a right and left sole pattern onto the stiff soling leather.

ABOVE: ***1.*** *Tracing Pattern onto Soling Leather*

2. If you have access to a 5-in-1 cutter tool, a jigsaw, or a bandsaw, you can use that. Otherwise, wet the leather and carefully (and patiently) cut the outsoles with your utility knife.

   Cut out the leather around the sole in sections, cutting along your marked line for a short distance, then cutting away at a tangent until you reach the edge of the piece. Cutting each section will take a few passes for the blade to cut through the thick leather. Your first pass should be very light, just setting down the line. Your second pass should follow your original cut line, but with more weight. With your third cut your blade will start to pass through the other side of the leather. I recommend doing this whole process for each long, sloping cut line, and removing the excess leather before moving on to the next section.

ABOVE: ***2.*** *Cutting leather Outsoles*

Tip: *Cutting the stiff soling leather with a utility knife will be easier if the leather is damp. Use a spray bottle or run the leather quickly under a faucet.*

3. Gather your heel blocks if you've purchased them or make them from stacking stiff soling leather (see here).

Stacked Leather Heels

At some point, you may want to make your own stacked leather heels. Perhaps you want to try an unusual shape (like a round heel or a double platform heel), or maybe your supplier is out of the premade kind. I often use extra stiff soling leather to construct my own heels from scratch.

1. Make a paper pattern of the heel size you want, keeping in mind that the shape will get sanded down a bit. Trace the pattern several times on thick, stiff soling leather. Cut out the pieces with a specialty cutting tool like a 5-in-1, if you have one, or wet the leather and carefully cut with a utility knife.

Tip: For a short heel, you may want 1 or 2 stacks per foot; for a higher heel, you may want 3–5 stacks. Any heel over 1" will require a shank made of steel, fiberglass, or stiff leather to be layered between the outsoling and upper layers. I recommend sticking to heels less than 1" in height as a beginner because finding or creating a shank to fit into your project is a more advanced undertaking.

2. Rough up each side of the heel layers all the way to the edges. Working one layer at a time, glue them together using solvent-based shoe glue. Hammer each layer together after you glue. You may choose to glue some thin rubber on the very bottom of your heel stacks.

3. On the top side of the heel stack (where it will join with the outsole), carve out a slightly concave shape. You can do this with a knife and sandpaper or with a belt sander. This divot can be less than perfect, as the sole will cover it up. You just want to create a dip so that the heel of your foot settles into the middle of the heel area.

4. If you have a belt sander, sand the front edge of your heel stack, making that surface nice and even. Once the heel is adhered to the outsole, it will be impossible to sand this spot. If you are working without a belt sander, you won't be able to get a very smooth edge with sandpaper. Instead use your knife to make this edge as clean as possible.

ABOVE: ***1.*** *Tracing*

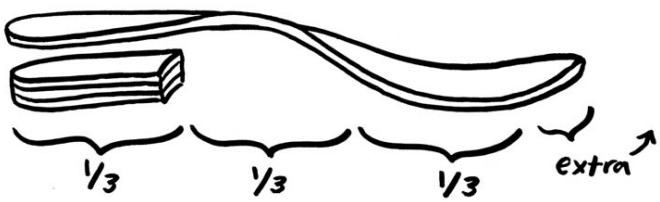
ABOVE: ***3.*** *Carved Dip in heel block*

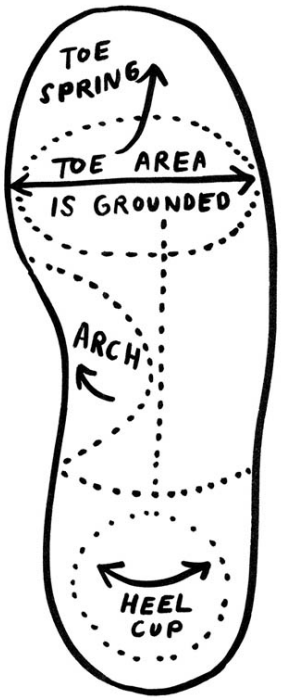
SHAPING LEATHER SOLES

When your heavy outsoles are cut out, you are ready to shape them with water.

1. Run them under a faucet for about 15 seconds each, or until they are fully saturated on both sides, with no dry spots remaining. Note that the rough side will be the top and the smooth side will be the bottom. Working on one sole at a time, shape the arch area (about the middle third) so it curves upward. I like to use the edge of a sink or counter to help push this spot up while I press down all around the arch. Next, lift each toe end of the sole up to create a toe spring along the top third of the sandals. Shape the heel areas (the back third) so they meet up with the heel block in a unified way.

ABOVE: ***1.*** *Shaping leather soles*





2. Stand with your bare feet on the outsoles, heel blocks in place if you are going to use them, and check that the curves of the outsoles accommodate the curves of your feet.

3. Once both soles are shaped to your satisfaction, line them up next to each other on a table and compare the curves, making sure they are symmetrical. Allow both pieces to dry fully, at least 3 hours and up to 24 hours, depending on the weather. You can set the outsoles in the sun or near a heater to speed up the process.

ABOVE: ***3.*** *Comparing the Curves*

JOINING LEATHER SOLES AND HEELS

1. Line up each heel block with the back of its outsole, allowing any unevenness of the sole edge to hang off. It is easier to trim these off than it is to sand down the entire heel block. Holding each heel to its sole, use an awl to mark a line where the front of the heel lands on the underside of the outsole. Use the awl or rougher tool to create texture from this line to the back edge of the sole, and create the same amount of texture on the top of the heel block.

2. Add glue to the four areas you texturized in the previous step. I usually use a solvent-based glue for this step because the heel and outsole are exposed directly to weather and street elements, but a water-based leather glue will also work. Wait 5–10 minutes for the glue to get tacky.

3. Carefully join the heel block to the outsole, using the front edge line as your guide. Hammer the sole onto the heel over an anvil or sturdy table. Close up any gaps with additional hits with the hammer. Repeat on the second shoe.

4. Secure the outsoles to the heels with three heel nails per heel. Make a deep pilot hole for each nail by twisting an awl into the outsole from above. Place a nail into each pilot hole

and hammer over an anvil until the nail head is flush with the top of the soling. Add nails anywhere the sole edge might be lifting away from the heel block.

Tip: If a nail goes awry, pull it out with pliers and start again.

ABOVE: ***1.*** *Roughed-up heels and OutSoles*

ABOVE: ***4.*** *Nailing heels*

JOINING UPPERS TO LEATHER SOLES

1. Use an awl or rougher tool to add texture to the entire top of both outsoles and the entire bottom of both uppers. Give extra attention to the outer edges, as these are the areas that need to adhere the best.

2. Apply a generous amount of glue on the top of both outsoles and the bottom of both uppers. Let sit 5–10 minutes, allowing the glue to get tacky.

3. Carefully hover the first upper over its matching outsole. Lower the upper slowly and gradually, making sure to guide it precisely where you want it to land. Keep the little strips of leather next to the strap slots tucked in snugly; don't allow them to gap outward. Repeat with the second shoe.

4. Make sure the glue is properly compressed by:

   - Using your fingertips to press all the layers together and pinch the outside edges
   - Standing in the shoe and allowing your body weight to compress the layers
   - Placing the shoe upside down on a shoe anvil and hammering the bottom

- Placing the shoe over an anvil or a sturdy table and hammering around the top edge of the shoe

ABOVE: ***3.*** *Joining Uppers to leather soles*

Nails

It isn't absolutely necessary to add clinching nails to your shoes, but doing so will help pinch the layers together tightly. It's also one of my favorite steps and makes me really feel like I'm a cobbler. A pilot hole helps the nail to pass through all the layers: the tip of the nail will hit the shoe anvil, bend, and become flat, to act like a staple holding the layers together tightly. I place a few nails at each strap connection point, just in from the slot. Use 2-ounce brass clinching nails, sometimes called hand shoe tacks (see here) and a shoe anvil. For most of the straps, you'll hit your nails from the bottom of the outsole. To secure the straps around your ankle, you will hammer the nails from above.

1. Place your sandal over an anvil or shoe anvil so that the area you will hammer into is supported from below. Make a pilot hole with your awl about ¼" in from your ankle strap slots. Place a clinching nail in the pilot hole and hammer over the anvil so that the nail travels through the whole shoe and contacts the anvil. This will clinch the layers and create a little dimple on the underside. If your pilot hole is located over the heel, simply set the heel block over the anvil and hammer as you would with the other holes. A nail set into the heel will not clinch in the same way, but it will stay in the shoe and hold the strap in place.

ABOVE: ***1.*** *Setting nails from above*

2. For inside areas that you cannot reach with a hammer (such as the inside of the toe straps), a shoe-shaped anvil becomes especially helpful. Slide your sandal onto the anvil with the outsole facing up. Look closely at the edge of the sandal to decide where to place your nail so that it secures the tab. Use your awl to make a pilot hole (or several) into the sole at least ½" from the edge of the sandal.

   It's up to you how many clinching nails you use. I use one nail to hold each narrow (about ¾") strap and two or three nails to hold each strap that's wider than 1". Set each nail, one at a time, and check that it clinches properly. If any remain pointy on the inside, it probably means the tip didn't

connect with the anvil. Just slide the sandal onto the anvil again and hit the nail until it flattens.

ABOVE: ***2.*** *Setting nails from bottom of Outsole*

ABOVE: *I set the nails inside the toe strap from below and the nails at the ankle strap from above.*

Finishing

The shoe is shaping up! Now you just need to tend to the edges and complete other finishing touches to the upper, such as adding buckles, studs, or laces.

SANDING

One option for sanding your shoes is to pay a cobbler about $20 to “finish” the edges. This may be a good idea if you live in an apartment or don’t have access to woodshop tools or an outdoor workspace. This approach has the added bonus of connecting you with a person in the shoe trade who potentially could help you find materials and give you shoemaking tips.

Alternatively, you could buy or borrow a tabletop belt sander and sand the edges yourself. If you see yourself making several pairs of sandals, this tool is a worthy investment. It’s best to use a belt sander outside, or hook up a dust collector if you have to work inside. Indoors or out, wear a particle mask and safety glasses as you work.

If you’re wondering whether you can just use sandpaper, a Dremel tool, or an orbital or hand-held belt sander, the answer is no. To get a smooth edge on your sandals, you need something heavy enough to put pressure against as you sand. You’ll also need to hold the shoe with both hands, so handheld tools aren’t an option. A tabletop belt sander is the way to go.

1. With the sanding belt in the horizontal position, hold the sandal with both hands, while pinching the upper straps out of the way. Rub the edge of the sandal against the round, protruding part of the long arm of the sanding belt, and get used to the pressure required to remove material. Each section will require several passes along the sander to get down to an even and smooth edge. Constantly readjust the sandal in your hands, always keeping the upper straps tucked away as you move along sanding the edges. Apply heavy pressure to create a smooth edge. (Tentative pressure can create a bumpy edge.)

Tip: Each sandal will take a few minutes to sand. Push the shoe edges against the belt smoothly and firmly.

2. When you're satisfied with the smoothness of the sides, use the sander to bevel the bottom edge at a slight angle. The sandals will be dusty and have a little leather lip along the top edge of the footbeds. You will take care of that in the next step.

ABOVE: ***1.*** *Sanding*

TRIMMING

Dust off your sandals after sanding and clean any rubber dust from sole edges with a wet rag. You will trim away by hand the tiny lip of leather along the footbed edge. Use scissors to trim along the toe and heel curves, and a knife to trim along the sides. Make sure your blades are sharp to ensure you get clean, smooth edges. Trim away the smallest amount possible, using long, gliding strokes and working at a 45-degree angle with both the scissors and the knife. This will result in the top edge of the footbed being slightly beveled.

ABOVE: *Trimming*

EDGE FINISHING

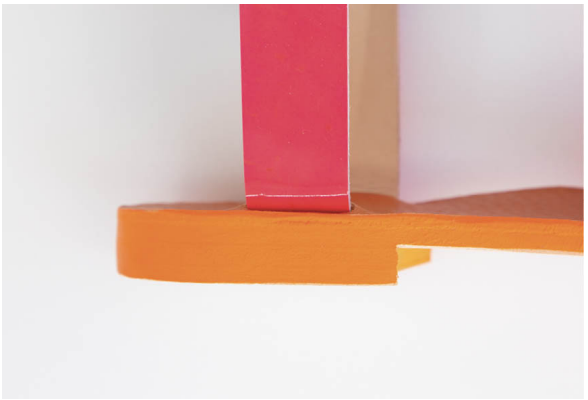
The edges of your soles can be treated in a number of ways. One of my personal favorites is doing no finishing at all; the leather will be fine without being sealed. If you want a more polished look, you might consider painting on a clear or colored edge coat (see here). You can also rub a beeswax-based leather conditioner into the edges with a cloth, and then burnish to a high gloss with a cotton wheel on a lathe, or burnish with a hardwood hand tool.

ABOVE: *raw*

ABOVE: *clear edge paint*

ABOVE: *beeswax-based leather conditioner with lathe burnishing*

ABOVE: *beeswax-based leather conditioner with hand-burnishing*



ABOVE: *colored edge paint*

ABOVE: *dark edge paint*

LACES AND HARDWARE

I recommend waiting until the very end to add laces or hardware, because until your sandals are built, you can't be certain exactly how the straps will land or line up on your foot. For instance, you may end up trimming down a strap before this phase or rounding a shape that was once square.

Laces

1. Try the sandals on, and with a pencil mark where you want to place your lace holes.

2. With a rotary hole punch on a setting large enough to allow your laces to pass through easily, punch where you marked in step 1.

3. Pull one lace into place and make sure you have enough to tie a bow. Trim the lace to the desired length, and cut a second lace to match.

Rivets

Rivets are small pieces of hardware that hold together two layers of leather in a permanent way, similar to a staple. They're used when attaching straps and buckles.

1. Mark a dot with a pencil where you want to place each rivet. With the rotary hole punch on the 3 mm setting, punch a hole through both layers of the leather that you want to join.

2. Place an extra-small or small size double-cap rivet post on the underside of the leather layers and a rivet cap onto the top, with the leather layers sandwiched between.

ABOVE: ***3.*** *Laces*

ABOVE: ***2.*** *Double-cap rivets*

3. Press firmly until the two rivet pieces snap together. Adjust the straps so that they land at the desired angle, and either

hold them at that angle or use tape to hold the straps in place. Once you hammer the rivet, it will no longer be adjustable.

4. Place the bottom of the rivet post over an anvil or sturdy table and use a metal hammer to strike the cap until it is quite flat. Some people use rivet-setting tools for this step, but I prefer the look of a flat rivet. Once the rivet is set, you may trim the back of the strap to be closer to the rivet, if desired.

ABOVE: ***4.*** *Flattened Rivet Over an Anvil*

Screw-Back Studs (aka Sam Browne Studs)

Studs are small pieces of hardware that attach to one layer of leather, allowing another layer of leather to fasten over the stud through a keyhole-shaped slit. The stud is secured in place with a post that you tighten with a screwdriver. If you want to move the stud to a different location on the strap, simply unscrew it, punch a new hole, and move the stud to the new position. You will use the existing keyhole slit to fasten the straps with the new stud position.

1. Try your sandals on and determine where you want your stud to be and where you want the keyhole-shaped hole on the layer that will be secured to the stud. With a pencil, mark only where the keyhole shapes should be. You'll determine the stud placement later.

2. Punch the keyhole shape with a stud hole punch, or use a rotary hole punch on the largest setting and with your knife make a short slit on the side of the punched hole *away* from the edge of the strap.

   Note: The stud should rest in the round part of the keyhole shape, not in the slit. It may take a moment to figure out the best way to orient the slit, since it depends on how your foot puts pressure on the strap.

3. Place the strap with the keyhole over the bottom layer and mark a dot where the stud should be.

4. Punch out this dot with the rotary hole punch on the 3 mm setting.

5. Pop the post of the stud through the back of its layer and screw the head onto the post. Tighten with a screwdriver.

6. To provide variable fits with a screw-back stud, punch additional holes on either side of the stud. (These will be hidden by the strap above.) Move the stud to a looser or tighter spot when necessary.

ABOVE: ***2.*** *Punching a Stud hole*

ABOVE: ***6.*** *Stud with Several Fit Settings*

Buckles

The width of the strap should be the same as, or a little narrower than, the middle bar of the buckle you use. Try pulling your strap through the buckle to make sure it passes smoothly. If it is tight, you might want to narrow your strap before attaching the buckle. Once the buckle is attached, you will place a rivet behind the buckle to secure it.

1. Mark a dash where you want your buckle to sit on your strap. This should be at least 1 ½" from the end of the strap to allow enough length for the strap to double back behind the buckle.

2. Use a ½" or ⅓" oblong punch to punch an oval lengthwise on the strap where you marked the buckle placement. If you do not have an oblong punch, use the technique described here to cut strap slots: punch two circular holes, then connect them with two parallel knife cuts.

3. Slide the buckle into place on the strap so that the tongue of the buckle passes through the oval hole and the strap end bends back around the middle bar of the buckle. Make sure that the buckle tongue is lying flat and not poking up (which would mean the buckle is flipped). When the buckle is nestled into place and the oval cutout allows the tongue to move freely, pinch the leather pieces together and make a mark where you will place the rivet: right behind the buckle. Any closer and it will be hard to reach with a hammer; any farther and the buckle could slip out of place.

4. With the rotary hole punch on the 3 mm setting, punch a hole through both layers of leather at that mark.

5. Place a double-cap rivet post on the underside of the leather layers and place the cap of the rivet on the top. Press until the two pieces snap together.

6. Position the rivet over an anvil or sturdy table and hammer the cap onto the post until it is quite flat. Trim the back of the buckle strap to be closer to the rivet, if you wish. Repeat steps 1–6 on the other sandal.

7. Once the buckles are secured, try on your sandals and slide the long straps through the buckles. With a pencil, mark where a hole should go in the strap for the ideal fit. Make a dot about 3/8" on either side of your ideal mark to give yourself a few fit options.

8. Punch out all the holes in each strap with the rotary hole punch on the setting that best fits your buckle tongue, usually the second- or third-to-smallest setting.

ABOVE: *Buckle with Rivet Holding It in Place*

Closed-Toe Shoes

Once you've made a few pairs of sandals, you will no doubt begin daydreaming about making *shoes*. Traditional shoemaking is a time- and labor-intensive process that requires specialized training, tools, and incredible attention to detail. My shoemaking process, on the other hand, is much simpler.

Here I will show you how to make wet-formed leather shapes and incorporate them into the layers of a shoe, similar to the sandalmaking process you've learned so far. This approach is a nice way to transition to this next phase of shoemaking. You'll become comfortable shaping leather

around a shoe form and manipulating the shapes to produce the right fit. You can then expand on this technique to execute a wide variety of upper patterns.

In order to create a shoe that fits well, you'll need to start with a pair of lasts (shoe forms) in roughly your size. Because this technique allows for a lot of flexibility, your lasts can be a whole size smaller or larger than your foot. For example, if you wear a size 8 shoe, lasts between sizes 7 and 9 should work fine.

Before starting your shoe project, I recommend adding a layer of thick leather to the bottom of your lasts. This will help account for the additional space you'll need to slide in your footbed layer once you've created your upper shapes. To do this, trace the exact sole shapes of the lasts onto thick leather and cut them out, scratch them, and glue and hammer them to the bottom of the lasts. If you don't want to permanently alter your lasts, tack the leather in place with a few lasting nails and use masking tape to make the edges flush with the last. It is fine to skip the step of adding leather to lasts, as I did with the Mary Janes, but this will result in less wiggle room in the fit of your uppers.

ABOVE: *The shape of the last dictates the shape of the shoe.*

MAKING PATTERNS

The lasts you choose will guide your pattern making.

1. Set one last onto a sheet of paper. Trace it with a pencil, making the adjustments listed below, and cut out. This will be your footbed pattern. Mark one side of the paper *right footbed* and one side of the paper *left footbed*.

   - If the style you are making is open in back, add 1/8"–1/4" width all the way around the heel to give your ankle room to shift in the shoe. If you are making a shoe that is closed in the back, you can keep the footbed shape narrow.
   - Add about 1/2" of length to your footbed pattern at the heel, just in case you end up needing it. You can always trim it later.

2. To make your outsole pattern, trace your footbed pattern and add a halo about 1/8" all the way around. Your outsole patterns should be slightly larger than your finished outsoles need to be because the leather soles shrink a little when they go through the wet-forming step. Cut out this pattern and label one side *outsole right*, and the other *outsole left*.

ABOVE: ***2.*** *Making the outsole pattern*

3. When creating upper patterns from scratch, drape paper onto the last and draw the shapes you plan to create and cut them out, making adjustments as needed. The paper won't drape perfectly onto the last, but try to imagine how the shapes will behave in leather. Make sure that the pattern, when pulled snugly against the last, extends at

least 1" under the bottom edge. This will be your lasting allowance.

Note: When designing upper patterns, traditional shoemakers cover the last in layers of masking tape, draw the design directly onto the tape, and then slice the tape pattern off the last. They make relief cuts to allow the masking tape pattern to lie flat on paper, which they then cut out. I find that this technique has almost the same amount of room for error as my method, so for simple shoe designs, I stick with paper patterns. Feel free to try either technique!

PREPARING THE UPPERS

I recommend using vegetable-tanned leather to make your uppers. When it dries, wet-formed vegetable-tanned leather will be firm yet flexible. I find that 3/4 ounce leather works well and will be easiest for beginners to last successfully. While 4/5 ounce leather will be more durable, it can be a little trickier to shape on the last. You could also line a lightweight 2/3 ounce vegetable-tanned leather with another lightweight 2/3 ounce garment leather to create a thickness ideal for lasting and wearing.

Note: If you decide to line your uppers, use the lightest-weight 2/3 ounce leather you can find to produce an end result close to 4 ounces. If your lined leather is too bulky, it will be difficult to last well and the toes will look bumpy. (To remind yourself about leather weights and thicknesses, see here.)

Over time, the shoes you create will develop some creases at the toe, the result of your foot bending the shoe. To minimize these creases, some people insert toe stiffeners between the exterior and lining leathers. Toe stiffeners can be handmade from thinly skived vegetable-tanned leather or bought premade of heat-activated material. I skip that technique here because it takes practice to add a toe stiffener seamlessly, and I don't mind the look of a slightly creased toe. Just know that as your skills progress, you can consider adding that step into your process.

PREPARING THE SOLES

1. Trace and cut both a right and a left footbed out of thick footbed leather.

2. Trace a right and left outsole on stiff soling leather. Cut out these shapes with a knife. Wet the thick leather and shape the outsoles as described, incorporating toe springs, arch lifts, and heel cups. It's okay if the curves on your outsoles don't exactly match your last's curves.

3. Choose a pair of heel blocks or prepare your own (see here), if you plan to use heels. Slide them under the outsoles as you fine-tune the toe spring and arch support for each foot. Leave the heels under the outsoles while they dry for 3–24 hours. You can speed along the drying process by placing the shoes in the sun or near a heater.

LASTING

Lasting is the process of stretching the upper leather over the shoe form. You will secure the upper leather into place with lasting nails and give it time to dry before pulling it off and further adjusting the fit.

Prepare your workstation with your lasts, the leather for your toe pieces, lasting nails, and either a pair of lasting pliers or a hammer and pliers. Before you begin, decide where on the last the upper should land in order to achieve the look you're after. Make a small mark on each last to indicate where to place the leather when you are wet-forming it.

1. Hold one of your leather toe piece uppers under a faucet or in a water basin for about 15 seconds, until it is fully wet and evenly saturated, with no dry spots, but also not dripping.

2. Spread the wet leather onto the last, smoothing it evenly so there is no air between the leather and the shoe form. There will be some unevenness at first, but this will be resolved as you tug at the leather and secure it with lasting nails. While holding the leather against the last, flip the form upside down and place it in your lap.

ABOVE: ***2.*** *Shaping*

3. Fasten the leather in place on the underside of the last using lasting nails, starting with two nails at the broadest part of the toe box: one on the right and one on the left. Each nail should be about 3/8" from the outer edge.

4. Use pliers to stretch the leather around the toe of the shoe form, then tack a nail at the very top of the sole area, at the toe, to hold the leather in place. The nail should be about 3/8" from the top edge.

ABOVE: ***4.*** *Placing the First Few Nails*

5. Work your way down from the top nail, moving back and forth around the underside of the sole edge, adding each new nail about ¼" from the previous nail on that side. Each time you add a nail, gather the damp leather so that no wrinkles show above the sole edge. To accomplish this, you will need to create large wrinkles underneath the edge line, lay the wrinkles very close together, and fasten them with a nail between each wrinkle. Essentially, you are creating pleats with the leather. These wrinkles will be cut off later, so it doesn't matter if they are bulky, as long as they occur only on the underside of the shoe. At the top of the toe, the wrinkles will be large and frequent. As you

work toward the side of the shoe, the wrinkles will be smaller and more spread out because you will have less excess leather to contend with. At that point, pull the leather straight back and tack it down with nails spaced out more widely (every ½"or so).

Note: The first time you work with these wrinkles will be an adventure; you will get better with experience.

ABOVE: ***5.*** *Lasting*

6. When the first toe is lasted, repeat steps 1–5 for the second shoe, trying your best to mimic the shape you created on your first one.

7. Allow both uppers to dry overnight.

ADJUSTING THE FIT

1. When your lasted toe pieces are fully dry on their forms, use pliers to pull out all the lasting nails. Slide the leather toe pieces off the forms to make sure they are dry inside, then return them to the lasting forms.

2. Hold one last in between your legs, with the bottom facing up. Extend a knife blade out about 2" and, being extremely careful and keeping your non-cutting hand out of the way of the knife, use a sawing motion to trim the wrinkles off the bottom. You are only removing the excess leather that stands tall. You can always remove more material later on, so go slowly at first. Leave at least 3/8" or more around the bottom edge, as this remaining leather around the bottom will soon hold the glue and clinching nails. If you have trouble trimming safely with a knife, use scissors to cut hard-to-reach pieces. Repeat this step on the other last.

ABOVE: **2.** *Trimming the wrinkles*

3. Remove the toe shapes from the lasts. Slip your foodbeds into the leather toe shapes, making sure they slide in all the way. Use masking tape to hold them in place and try on your shoes with the outsole and heel block underneath.

4. If the footbeds seem too wide, or they are making the toe shapes odd in some way, remove them from the toe shapes and trim the footbeds down now. Once the width of the footbed is right, focus on adjusting the tape on the underside so the toe shapes fit your feet well. A good fit will not squeeze or pinch in any way, but there should also not be much gapping. A little extra space will be necessary to

allow for comfort while you walk. What appears at first like a small gap at the side will mold to your foot shape over time and end up fitting just right.

5. Confirm that the upper leathers of the right and left shoes look symmetrical. One may have been lasted differently and may need to be trimmed to match the other. If you need to make adjustments, do so now. Then readjust the tape so both shoes fit properly.

ABOVE: ***3.*** *Adjusting the Fit*

ABOVE: ***5.*** *Upper taped in place*

SCRATCHING AND GLUING

Because you most likely adjusted the fit of the sides of the toe pieces, you'll want to articulate the line where the footbed will be glued.

1. Reach inside each toe shape and use your awl to indent a line where the footbed lands inside each toe piece. This line will help you know where to scratch and glue.

2. Turning to the bottom of the footbed, carefully remove the tape, one piece at a time, and outline with a permanent marker as you go where each upper lands on the bottom of the footbed.

3. Using an awl, scratch within the toe shapes to the edge line you created in step 1, and inside the marker lines you made in step 2. It will be difficult to reach into the deep part of the toe shapes; just do your best. If you are using unlined leather, it will already be rough and you won't need to add much texture. If you have lined your upper, you will need to give it extra scratching attention.

4. Apply glue to the areas you just texturized. Let all four pieces sit until the glue is tacky.

ABOVE: ***2.*** *Outlining where the Upper Lands*

ABOVE: ***4.*** *Gluing*

Tip: *To get glue into hard-to-reach toe areas, I sometimes use a long, skinny paintbrush.*

5. Hold one toe piece upside down and carefully slide the footbed into the toe piece without allowing the glued parts to touch until the footbed reaches the very tip of the toe piece. Press the layers together following the outlines you made in step 2. The glue is sticky, so be sure you tell it what to do and not vice versa. Repeat with the other shoe.

6. Slip on both shoes to check the fit. If you are unhappy with a section, pry it apart with pliers and reglue it. When you are

happy with the way both shoes fit, slide one at a time upside down onto a shoe anvil and hammer to reinforce the bond between the layers. Be sure that each part you hammer is fully supported by the anvil; if you hammer a part that is only partially supported, you could dent your footbed.

7. You are now ready to work on the back half of your shoe.

   To make shoes with an ankle strap and an open heel, slide a foot into each half-made shoe as it rests above the outsole and heel, then drape and mark your ankle straps as described. Finish making the back half of the shoes as you would sandals, following the directions.

   To make closed-back shoes, make your heel pieces the same way you made your toe pieces here. When dry, tape the heel pieces into place to check the fit. Most likely you will want to trim the footbed's length and width for a good fit. Mark, scratch, and glue into place.

8. To create an even surface underfoot, you can skive the undersides of your upper, or create and attach a midsole layer using the instructions. In the photo below, the midsole consists of two separate parts that fill in the gaps between the two sides of upper leather and in the heel area.

ABOVE: ***5.*** *Joining*

ABOVE: ***8.*** *Midsole attached*

JOINING THE OUTSOLES

In front of you should be your completed uppers and your completed outsoles (with heels already attached, if using).

1. Place an upper on top of its outsole and assess whether the outsole needs to be cut down to match the footbed. (The outsole should join to the upper without extending beyond the upper leather.) If you do need to cut the outsole, mark it with a pencil and trim down to size. Repeat with the other shoe. If your outsoles merely need some sanding to match well with the uppers, do that now. It is important to sand these sole edges to just the right size at this time (especially where they meet the closed-toe and closed-heel shapes), as you will not be able to sand the edges later without damaging your uppers.

2. Now that your outsoles are the perfect size and shape, place an upper in your lap, upside down. Position the matching outsole on the upper with the bottom of the sole facing up. The edges of both pieces should be flush with one another. Using an awl or a fine-tip pencil or permanent marker, make an outline where the outsole lands on the upper. Repeat with the second shoe.

   Note: When making a mule (as pictured here), leave the back of the sole and heel unsanded until later. Once the shoe is glued together, try the shoe on to figure out how much material to sand off the length.

ABOVE: ***1.*** *Marking and Sanding the Outsole to Match the Upper*

ABOVE: ***2.*** *Marking Where the Outsole Lands on the Upper*

Tip: *I like to use an awl or a fine-tip permanent marker that is close to the color of my upper.*

3. Using an awl or rougher tool, texturize the bottom of the uppers within the lines you made in step 2. It is important to create plenty of texture all the way to these limit lines. Make texture on the top of your outsoles as well, and apply glue to all four pieces and let sit until the glue is tacky.

4. With an upper facedown in your lap and starting at the very top of the toe, slowly press the outsole onto the upper. As you go, check that the pieces are aligned and the outsole doesn't veer to the right or left. Once joined, press the layers together with your fingertips. Repeat with the other shoe. Try on both shoes and use your body weight to compress the layers, then slide each shoe onto an anvil, outsole facing up, and hammer to join.

ABOVE: ***3.*** *Applying Glue to the Upper and Outsole*

ABOVE: ***4.*** *Hammering to Join*

Nails

Even after some hearty hammering, you may notice that the edge where the upper meets the outsole isn't as tight as it could be. This is where clinching nails come in handy, acting as staples to pinch the layers (upper, footbed, outsole) tightly together. For this step, a shoe anvil is essential.

1. Slide your shoe facedown onto the shoe anvil. Using your awl, make a deep pilot hole 1/8"–3/16" from the edge of the outsole. Place a 2-ounce brass shoe tack (6/16"–7/16") in the pilot hole. Make sure the shoe is set up so that the nail is over the anvil. The nail will pass through all the layers and the tip will hit the shoe anvil, becoming dull and flat on the inside of the shoe. Hammer it until the tip on the inside is flat to the touch.

2. Working around the edge of the sole, add nails every 1/2"–3/4"or so. If you are working on a round toe shape and a round anvil, you shouldn't have any trouble with the toe. If the toe of your last is pointy, though, it can be tricky to properly set nails at the tip and still have the nail clinch onto the anvil. In this case you may want to purchase a pointed anvil or take your shoes to a clever cobbler for assistance.

3. In some cases you won't be able to hit nails from below. For instance, when making a shoe with a closed-heel shape, the heel block is too thick to nail through from below. Instead, set these nails from above. For these, make your

pilot holes from above, and place the shoe faceup over the anvil, so wherever you plan to hit is supported by the anvil. If you can reach the nail head with your hammer, great. If you can't, simply put the nail in its pilot hole, flip the shoe upside down again (the nail will stay), and make sure the nail head is over the anvil. With the hammer, tap once or twice on the heel opposite where you placed your nail. These taps will begin to push the nail into place. Take the shoe off and check that the nail is going into the pilot hole straight, not askew. If it's going straight in, turn the shoe over again and hammer with more force until the nail head is flat to the touch. If a nail goes awry after the first few taps, pull it out with pliers and try again with a new nail.

ABOVE: ***2.*** *Nailing from below*

ABOVE: ***3.*** *Nailing from above*

EDGE FINISHING

1. If your shoe is open in the back (as is a mule or an open-heel ankle strap), sand the back half of the sole edges once more to make all the layers line up smoothly. Be careful not to hit the toe part with the sander while working on the sides and heel.

2. Trim the top edge of the footbed leather with a knife and scissors.

ABOVE: ***2.*** *Trimming the Top Edge*

3. Attach any hardware or add lace holes, if using. Add any edge finishing you would like, or leave the edges raw. If

anything bothers you about the fit, see Troubleshooting.

Congratulations! You've made shoes. I know what an accomplishment this is. Remember that leather outsoles can be a little slippery at first, so consider adding some texture with a rougher to start them off.

Shoe Folk

There are many different ways to be a shoemaker. While some people in the footwear industry work on one aspect of the process (such as design, product development, sourcing materials, or manufacturing), a shoemaker often does all of these things him- or herself. Not only do many shoemakers today design and build shoes, they also make lasts and market and sell their finished work. To give you a sense of the variety among modern shoemakers, I'd like to introduce you to some of my favorite shoe folk. To learn more about any of these folks, see here.

ABOVE: *AMARA HARK WEBER*

Amara Hark Weber is a shoemaker, artist, and educator based in Minnesota. She has studied hand-sewn shoes with both Janne Melkersson and Marcell Mrsan; Western boots with D. W. Frommer; and high heels with Chris Francis.

Keiko Hirosue is a

ABOVE: *KEIKO HIROSUE*

shoemaker and entrepreneur. She started Brooklyn Shoe Space, a fully equipped coworking studio for shoemakers that hosts a variety of workshops. Hirosue is a vital supporter of the shoemaking movement and has connected a wide variety of shoemakers through her live conversations on Instagram.

ABOVE: *REID ELROD*

Reid Elrod crafts traditional, bespoke men's shoes. He studied with several European shoemakers and now competes in international contests and takes on a handful of clients each year. Originally from California, Elrod lives in Berlin, where he works for Korbinian Ludwig Hess.

Jason Hovatter teaches a variety of shoemaking courses in his home

ABOVE: *JASON HOVATTER*

workshop in Portland, Oregon. His classes are designed to introduce students to a wide range of patterning and leather-working skills.

ABOVE: *JULIE DERRICK*

Julie Derrick operates JD's Shoe Repair in Portland, Oregon, and has been mentored by some of the most experienced cobblers in the Northwest. Derrick works hard to find creative approaches to repair because she believes that beloved and useful items can be reinforced rather than thrown to the wayside.

Faye Smith fell in love with shoemaking in Spain and started her brand, Sevilla Smith, in 2015. She believes

ABOVE: *FAYE SMITH*

in transparency around production and in the importance of lasting leather by hand. Her designs reflect two very different sources of inspiration: medieval footwear and modern minimalism.

ABOVE: *ALDANONDOYFDEZ*

Aldanondoyfdez is the brand of handmade shoes started by Catuxa Fernandez and Ignacio Aldanondo, former architects based in Barcelona, Spain. Using traditional shoemaking methods, they craft original designs with a playful and experimental aesthetic that doesn't conform to trends or gender.

Jeremy Atkinson is one of three contemporary clogmakers who still hand-carves wooden clog bases. With techniques that date back to medieval times, he

ABOVE: *JEREMY ATKINSON*

uses long-handled blades to sculpt split logs into clog soles. After the wood dries out, Atkinson attaches leather uppers with clog welt tacks. His old-world–looking studio is in Kington, England.

ABOVE: *LISA SORRELL*

Lisa Sorrell, a bootmaker from Oklahoma, is a master of the sewn details for which Western-style boots are known. In addition to making boots, she sells shoe components online and teaches. Sorrell's book, *The Art of Leather Inlay and Overlay*, explores how bootmakers create their intricate designs.

CHAPTER 3

Sandal Projects

Here are some of my favorite sandal styles that I've been making over the years. These are tried-and-true styles that I selected in order to hit all the bases: modern, playful, classic, tying, buckling, slides, heels, platforms, feminine, masculine, unisex, easy, and more challenging. You can build them according to the instructions or improvise as you see fit. Good luck deciding what to make first!

Tying Sandals

I begin with this sandal because of its simplicity. It is casual and unfussy and has become, in my eyes, the signature sandal of my business. The design consists of two pieces per foot, with a tie at the ankle. The straps are sandwiched between the layers and skived so you won't feel them underfoot. Feel free to adjust the toe strap width and play around with the shape of the ankle strap. If you don't love laces, you can easily swap in a small strap that closes with a buckle or stud.

TOOLS

- Pencil and permanent marker
- Scissors
- Straightedge
- Knife

Awl or rougher tool

Rotary hole punch

Hammer

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout D) and blank paper

1 ½' square medium-weight upper leather (4/5 ounce or similar)

1' square thick footbed leather (9/10 ounce or similar)

Masking tape

Solvent-based shoe glue

1' square rubber soling material

Laces

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout D or make your own that include a sole shape, ankle strap, and toe strap. Be sure to choose a sole pattern that is slightly larger than you think you need. Cut out your patterns and check that they fit your feet and that the style suits you. Make adjustments as necessary. Be sure that

your upper patterns extend at least 1" underfoot when pulled snugly against your foot.

Remember: One side of the paper will represent the right foot and the flip side will represent the left foot.

2. **Tracing and Cutting.** Trace the ankle and toe straps onto your medium-weight upper leather and the sole patterns onto the thicker footbed leather. Remember to flip your patterns over so you get the correct shapes for both the left and right feet! Use a straightedge and cut the shapes just inside your lines so no marker or pencil marks remain on your shoes.

3. **Draping and Marking.** Place one foot on a low stool and onto the footbed leather and drape the straps over your foot. The back of the ankle strap should be snug against the top of your heel. The toe strap should cover your pinkie toe; in other words, don't let all five toes stick out past the front of the strap. The toe strap tabs will be angled back toward the heel to allow the opening at the toes to be a bit narrower than the space at the back. Once you've found the place where the straps look best, use a pencil or awl to mark a dot on the footbed where each edge of each strap lands, about 3/8" from the outside edge.

4. **Dots and Slots.** Punch out the dots you made in step 3 using the smallest setting on the rotary hole punch. Place the first footbed face-to-face with the other footbed and use a pencil or awl to transfer the dot placements to the second footbed. Punch out these dots, too, and create the

slots that your straps will drop through by connecting all the pairs of holes with parallel cuts.

5. **Fitting.** Slide the upper straps of both sandals into place. Adjust the straps until the fit is just right. This may require tugging them at a diagonal or cutting triangular darts (see here) into the undersides of the toe straps. Adding darts will provide a slight curve to the sides of the toe straps, resulting in a better-looking shoe. Secure the bottom tabs with masking tape.

6. **Outlining.** When you're happy with the fit on both feet, outline the bottom tabs with a permanent marker. Move the tape out of the way into a hinge position that will hold the tabs from shifting out of place while you glue.

7. **Scratching and Gluing.** With your awl, add texture to the surfaces of the tab and the footbed where you plan to glue. Apply glue and wait for it to become tacky. Press down each tab carefully within the lines you drew in step 6. Try on the shoes. If you're satisfied with the fit, hammer to secure the bond. If the fit needs a correction, pull up the tab with pliers and reglue in the improved position.

8. **Skiving.** Carefully use your knife blade to slope the tab edges for a smooth feel underfoot. Try the sandals on and make sure there are no spots of discomfort. When you feel you've done enough skiving, rough up the entire bottom of both uppers, including the tabs.

9. **Preparing Rubber Soles.** Trace your right and left sole patterns onto the rubber soling material, adding a halo of about 3/8" all the way around to produce an outsole shape slightly larger than you will ultimately need. This will make it easier to successfully glue and trim later. Cut out the sole shapes roughly with a knife.

ABOVE: ***3.*** *Marking*

ABOVE: ***6.*** *Outlining*

ABOVE: ***7.*** *Gluing*

ABOVE: ***8.*** *Skiving*

10. **Joining Rubber Soles.** In a well-ventilated area, apply glue to the bottom of the footbeds and smooth side of the outsoles and wait until it is tacky. Then apply another coat to all surfaces, again wait for the glue to get tacky, and carefully join. Try to incorporate a bit of toe spring and arch lift when you join these layers, as explained. After pressing the surfaces together with your fingertips, gently hammer the layers together. Try on the sandals and use your body weight to further compress the layers.

11. **Trimming Rubber Soles.** If you don't have a belt sander, hand-trim the soling edges with a knife. Hold each sandal in your lap and extend a sharp knife blade about 2", then lock the blade. Hold the upper straps out of the way and enter

the blade perpendicular to the rubber soling. Using the footbed edge as a trimming guide, pull your blade steadily through the rubber all the way around the sandal in as fluid a motion as possible.

ABOVE: ***11.*** *Trimming*

12. **Sanding.** If you have access to a belt sander, roughly cut off most of the excess rubber on both shoes using your knife,

then sand the edges as described. You can also take the soles to a cobbler, who can do the sanding for you.

13. **Trimming.** After sanding or hand cutting, you will notice an imperfect top edge on the footbed. Trim this away using a knife for the sides and scissors for the curves at the toe and heel. Take off as little edge as possible and work at a 45-degree angle. After this, you may choose to leave your sandal edges raw, because the leather and rubber may react differently to an edge treatment.

14. **Adding Laces.** Lace placement is up to you. Decide whether you want one or two holes on each side. Try on your sandals and draw dots where the lace holes look most natural. Mine are usually about 3/8" from the edge of the strap. Punch these holes with the hole punch, using a setting that will let the laces pass through easily. Determine how long the lacing needs to be to tie a bow, and trim two laces to size.

Toe Slides

Here is a traditional Greek sandal style in its most simplified form. Some people are devoted fans of the toe loop, while other people don't like the feeling of something in between their toes. I thought I was in the latter group but have come to love shoes with toe loops because they are secure yet easy to slip on and off. Once you soften the toe loop with a few wears, you don't even feel it.

TOOLS

Pencil and permanent marker

Scissors

Straightedge

Knife

Awl or rougher tool

Rotary hole punch

Hammer

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout C) and blank paper

1' square upper leather (4/5 ounce or similar)

1' square thick footbed leather (9/10 ounce or similar)

Masking tape

Solvent-based shoe glue

1' square rubber soling material

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout C or make your own similar pattern pieces. If you make your own pieces, you'll need a narrow strap to serve as your toe loop and a wide strap to go over the top of your foot. Be sure to choose a sole pattern that is slightly larger than you think you need. Cut out the pattern pieces.

2. **Tracing and Cutting.** Trace the toe loop and wide strap onto your upper leather and the sole shapes onto the footbed

leather. Before you start cutting your leather, make sure you have both a right and left sole shape! Use a straightedge and cut out all of the shapes except your footbeds inside your lines so no marks remain on your shoes. Cut out your footbed shapes right on the lines to make sure you don't trim away too much.

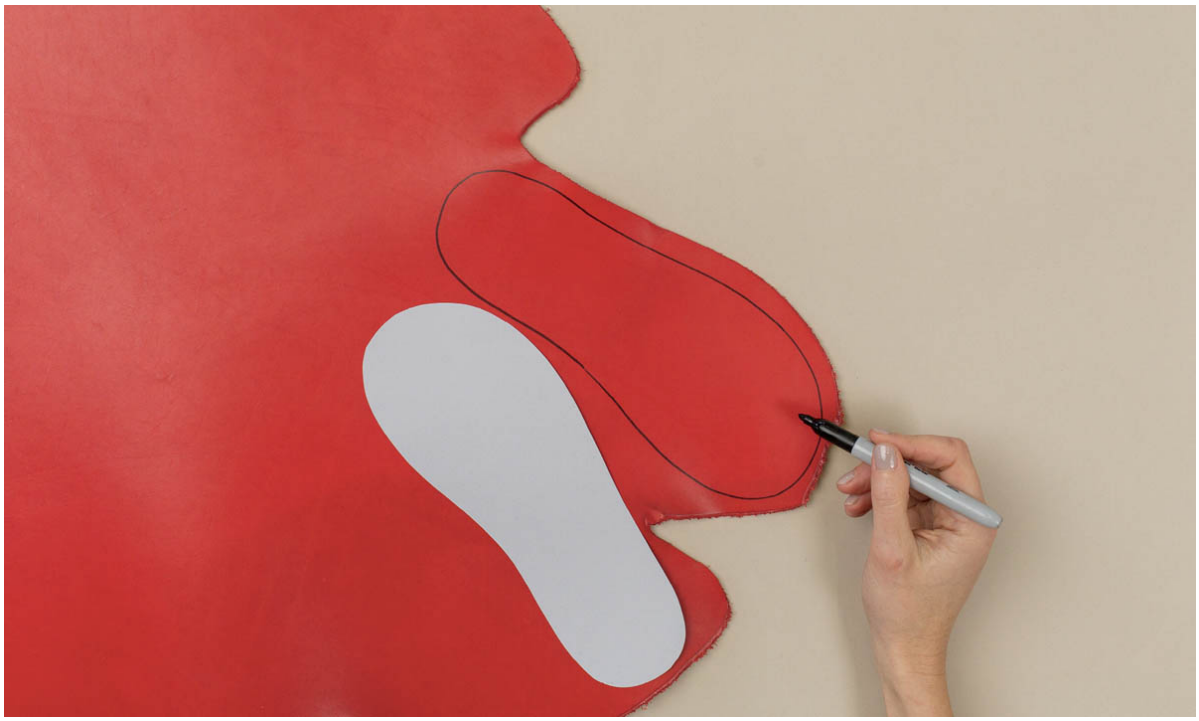
3. **Draping and Marking.** Place one foot on the footbed leather and drape the straps over your foot. With this style, place the wide main strap a bit farther back on your foot than you might think to at first; this creates stability and prevents your heel from shifting side to side. The main strap will enter the footbed slots at a steep angle, so underfoot this strap will angle back toward your heel. The toe loop strap should sit snugly against the outside of your big toe and tuck under the toe on the outside. The other end of the strap will tuck in the opposite direction (under the smaller toes) so the ends don't overlap. Play with the angle and placement of the toe loop until it is just right. The slot between your toes where the little leather loop lands will probably be just a fraction of an inch forward from the slot at the side of your big toe. Once you've found the place where the straps look best, use a pencil or awl to mark a dot on the footbed where each edge of each strap lands; this will be about 3/8" from the outside edge for all of the dots except those in between your toes.

4. **Dots and Slots.** With the rotary hole punch on the smallest setting, punch out the dots you made in step 3. If you can't reach the inner toe loop dots with the hole punch, use the

awl to make a hole instead. Place the first footbed face-to-face with the other footbed, use a pencil or awl to transfer the dot placements to the second footbed, and punch out those dots. Connect each pair of punch holes with parallel cuts to make your slots.

5. **Fitting.** Pull your straps into place. The main straps will enter their slots at an angle. Trim the ends of these straps so they meet somewhere near the middle underneath the footbed. One side of the toe strap will tuck under the big toe and the other side will flip toward the smaller toes. Adjust both straps for both feet and secure them in place with masking tape. If you are using vegetable-tanned leather, the straps should fit snugly; the leather will stretch over a few wears and result in a perfect fit. If you are using a more processed leather or a thin leather with a thin leather lining, aim for a more comfortable fit from the beginning. Try walking around with the straps taped in place to check the fit.

6. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline where the tab lands with a permanent marker. You can reuse your tape to secure each tab like a hinge so it doesn't slip out of place while you scratch and glue.



ABOVE: ***2.*** *Tracing*

ABOVE: ***5.*** *Fitting*

ABOVE: ***6.*** *Outlining*

7. **Scratching and Gluing.** Scratch the underside of each tab and the areas where the tabs will land. Apply glue to the scratched surfaces, wait until the glue looks tacky, and press the layers together. Slip on the sandals and see if anything needs to be adjusted or corrected. If so, do it now: pull up the strap and reglue in the preferred place. When you're happy with the fit, place the shoe over a sturdy table, an anvil, or the floor. Holding the straps out of the way, gently hammer the areas where the tabs meet the footbed. This helps to secure the glue bond. It will be difficult, if not impossible, to hammer the inside of the toe loop. Just firmly press together with your fingers and try the sandals on to compress the layers.

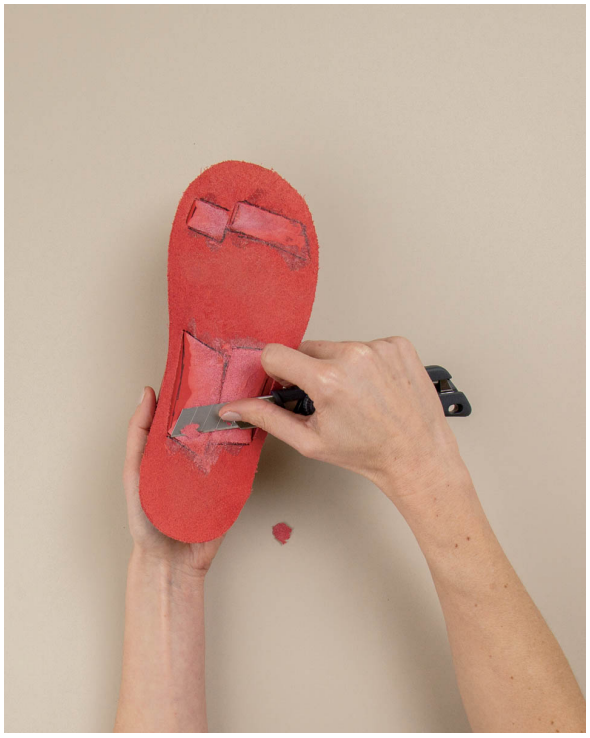
8. **Skiving.** Carefully use your knife blade to skive the tab edges for a smooth feel underfoot. Be patient as you work on the small tabs at the toes, as you don't want to remove too much material too quickly! For this style, you may only need to focus on the back edge of the main strap near your heel and some of the areas around the big toe. Remember that you are just trimming down the edges so that the tabs feel flat. You don't want to shave away the tabs so much that their holding power is weakened. Try the sandals on to make sure there are no spots of discomfort. When you feel you've done enough skiving, rough up the entire underside of the upper, including the tab areas. Give extra texture

around the outer edge, as that is the likeliest place that could someday come apart with wear.

9. **Preparing Rubber Soles.** Trace a right and left sole pattern onto your rubber soling material, adding about a ⅜" halo all the way around. This will make it easier to place the upper onto the outsole properly. Roughly cut out the soles; you will trim them down later.

10. **Joining Rubber Soles.** In a well-ventilated area, apply glue to the bottom of the footbeds and the top of the rubber outsoles. Let the glue sit 5–10 minutes, until it is tacky. Apply another coat of glue to both surfaces, wait for that to get tacky, and carefully join. Try to incorporate a bit of toe spring and arch lift when you join these layers, as explained. After pressing the surfaces together with your fingertips, gently hammer the layers together. Try on the sandals and use your body weight to further compress the layers.

11. **Trimming.** If you don't have access to a belt sander, hand-trim the edges with a knife. Working with one sandal at a time, place the shoe faceup in your lap and extend a sharp knife blade out about 2" long, then lock it. Hold the upper straps out of the way and enter the knife blade perpendicular to the rubber soling. Using the footbed edge as a trimming guide, pull your blade steadily through the rubber all the way around the sandal as fluidly as possible. Make sure your thumb and non-cutting hand are out of harm's way!



ABOVE: ***8.*** *Skiving*

ABOVE: ***11.*** *Trimming*

12. **Sanding.** If you do plan on sanding the edges, you should still trim most of the excess rubber away to save yourself a lot of sanding. Working over a table, use a knife to remove material in a series of sloping cuts. Sand the edges with a belt sander as described.

13. **Edge Finishing.** After sanding or hand cutting, you will notice an imperfect top edge on the footbed. Trim this away using a knife for the sides and scissors for the curves at the toe and heel. Take off as little material as possible, working at a 45-degree angle. After this, you may choose

to leave your sandal edges raw, because the leather and rubber may react differently to an edge treatment.

X Platforms

Platforms are so much fun to make! Stacking up the sole layers highlights the sculptural aspect of shoemaking. Most cobbler suppliers have foam rubber available in lots of colors and thicknesses, making the possibilities for these sandals endless. Because this style consists of wide straps, the straps should be made from a soft, flexible leather in a 3/4 ounce weight. These wide straps will be shaped to the contours of your foot.

TOOLS

Pencil and permanent marker

Scissors

Straightedge

Knife

Awl or rougher tool

Rotary hole punch

Hammer

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout C) and blank paper

1' square upper leather (3/4 ounce or similar)

1' square thick footbed leather (9/10 ounce or similar)

Masking tape

Solvent-based shoe glue

1' square EVA rubber soling material with texture on one side

1'–2' square EVA rubber soling material without texture (¼"–1" thick)

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout C or create your own pattern pieces. If you invent your own pattern, you'll need a sole shape and two long rectangles to make up the X. Cut out your pattern pieces

and make sure these long straps extend at least 1" underfoot on all sides.

2. **Tracing and Cutting.** Trace the strap pieces onto your lightweight upper leather and the sole patterns onto the thicker footbed material. Before you start cutting your leather, make sure you have both a right and left sole shape! Use a straightedge and cut out all shapes just inside your lines so no marks remain on your shoes.

3. **Draping and Marking.** Place one foot on the footbed leather and drape the straps in an X shape on your foot. For this style, position the wide straps so that all of your toes *except the pinkie* are visible at the front of the X. Once you've found the place where the straps look best, use a pencil or awl to mark a dot on the footbed where each edge of each strap lands, about ⅜" from the outside edge.

4. **Dots and Slots.** With the rotary hole punch on the smallest setting, punch out the dots you made in step 3. Then place that footbed face-to-face with the other footbed and use a pencil or awl to transfer the dot placements to the second footbed. Punch out those dots, and connect all pairs of punch holes with long, parallel cuts to make your strap slots.

5. **Fitting.** Pull all your straps into place, making sure they sit at angles that fill the length of each slot. Adjust the tightness of each strap to your foot, and secure the strap bottoms with masking tape. If you are using vegetable-tanned leather, the straps should fit snugly; the leather will

stretch after a few wears and result in a perfect fit. If you are using a more processed leather, aim for a more comfortable fit from the beginning. Try walking around with the straps taped in place to check the fit. Trim the tabs if necessary so they meet toward the middle but don't overlap. I highly recommend adding darts to the tabs toward your toes. This will allow the straps to gently curve, which will result in a better look and fit. See more information about making darts.

6. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline where the tab lands with a permanent marker. You can reuse your tape to secure the outside edge of each tab like a hinge so it doesn't slip out of place while you do the next step.

7. **Scratching and Gluing.** Using an awl or rougher tool, scratch the underside of each tab and the areas where the tabs will land. Apply glue to all of these surfaces, minding drying times. When the glue is tacky, carefully press down each tab within the outlines you made in step 6. Try on the sandals to check the fit. If you need to adjust a strap, peel it up and reglue it in the corrected position. When you're happy with the fit, place the sandal over a sturdy table, an anvil, or the floor. Holding the straps out of the way, gently hammer the areas where the tabs meet the footbed. This helps the glue bond.

8. **Skiving.** Use your knife blade to skive the edges of the tabs for a smooth feel underfoot. Be patient and work carefully.

Since these uppers are relatively thin, you might not need to skive very much. Try on the sandals to make sure there are no spots of discomfort.

ABOVE: ***3.*** *Draping*

ABOVE: ***5.*** *Taped in place after adding darts*

ABOVE: ***10.*** *Joining rubber soles*

9. **Preparing Rubber Soles.** Trace a right and left sole pattern onto both the texturized and non-texturized EVA rubber soling. For all of these layers, draw a halo about 3/8" all the way around the shapes so that the outsoles will be a bit larger than the sandals. This will make it easier to place the upper. Since they will be trimmed later, you can cut them out roughly.

10. **Joining Rubber Soles.** Scratch the entire bottom of the upper, tabs and all, especially the outer edge of the sandal. In a well-ventilated area, apply glue over the entire bottom surfaces of the uppers, as well as on top of the first, non-textured layers of rubber soling, which will join to your uppers first. Only work on one layer of soling at a time.

Wait until the glue becomes tacky, then add a second round of glue on each surface and wait another 5–10 minutes.

11. Hover the upper over the soling and slowly lower it into place. Try to incorporate a bit of toe spring and arch lift when you join these layers, as explained here. After pressing the surfaces together with your fingertips, gently hammer together. Try the sandals on and use your body weight to further compress the layers. Trim away the extra rubber material with a knife before moving on to the next layer of rubber soling.

ABOVE: ***11.*** *Creating Arch Support while Joining*

12. Repeat steps 10 and 11 with the second, and possibly third, layers of rubber. The final layer should have texture on the bottom to provide traction. As you join the layers, bring the new layers up to meet the curves of the upper, as opposed to flattening the upper onto the new outsole layer. Hammer to join. Trim away the excess rubber material. Repeat steps 10–12 with the other shoe.

13. **Sanding and Trimming.** Sand the edges with a belt sander or take the sandals to a cobbler to sand. If you sand the shoes yourself, the top edge around the footbed will need to be hand-trimmed. Dust off the shoes, and using a knife for the sides and scissors for the curves at the toe and heel, take off as little material as possible working at a 45-degree angle. After this, there is no need to seal the edges of the platforms. They're ready to wear!

Note: If you stacked multiple colors of soling material, you will notice the colors blending together after sanding. This is because the rubber dust was ground into the other layers during the sanding process. Clean the edges thoroughly with a wet rag, and they will present their original colors nicely.

ABOVE: ***13.*** *Sanding*

Crisscross Sandals

X-shaped toe straps are brilliant for beginning projects. They keep your foot securely in place (because they connect with the sole in four spots) while allowing the widest point of your toe box plenty of space to flex. Here the crisscross style is paired with the simplest ankle strap: one piece that wraps around the ankle and buckles on the side. With a little heel added, it makes a classic feminine sandal shape.

TOOLS

Pencil and permanent marker

Scissors

Straightedge

Knife

Rotary hole punch

Awl or rougher tool

Hammer

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout F) and blank paper

2' square upper leather (4/5 ounce or similar)

1' square thick footbed leather (9/10 ounce or similar)

Pair of heavy leather soles

Stacked heels (to make your own, see here)

Masking tape

2 buckles (1/2"– 3/4")

2 double-cap rivets

Water-based leather glue or solvent-based shoe glue

6 heel nails

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout F or make your own variations that include an X-shaped toe strap, an ankle strap, and a sole shape.

2. **Tracing and Cutting.** Trace the ankle and toe straps on the upper leather and your sole shapes on both the thick footbed leather and the heavy leather outsoles. Before you start cutting your leather, make sure you have both a right and left sole shape! Wet the heavy leather soling and cut out all your shapes, using a straightedge on the straps. In the middle of two of the toe straps, cut a 1 ½" slit for the other strap to slide through to create the crisscross.

3. **Draping and Marking.** Place a foot on your footbed leather and slide your heel block underneath to imitate the elevation you'll have when you wear the shoes. Drape the crisscrossed toe strap pieces over your foot. Four toes should show through the front of the crisscross shape; the pinkie toe should be mostly covered by a strap. Let the widest part of your foot peek out from the sides of the crisscross shape. The strap ends will likely hit the footbeds at quite an angle, resulting in slot lengths that are longer than the straps are wide. Mark a dot on the footbed where each edge of each strap lands, about ⅜" from the outer edge of the sole. Now drape the ankle strap so that it sits at the desired height around your ankle, which is usually a little lower than you first think. When it's snug around the back of your heel, and minding that the front straps come together nicely, mark dots on the footbed where the edges of the ankle straps land as well.

4. **Dots and Slots.** Using the rotary hole punch on the smallest setting, punch out all the dots you made on the footbed in step 3. Place this footbed face-to-face with the other footbed, and use a pencil or awl to transfer the dot placements to the second footbed. Punch out these dots and make parallel cuts between each pair of holes to create slots where each ankle strap and crisscross strap will tuck into the footbed.

5. **Preparing Leather Soles.** Soak the outsoles in water for about 15 seconds, then shape, using the instructions, to give them a toe spring and arch support. The outsoles should rest evenly on your heel block while they dry for up to 24 hours.

6. **Fitting.** While the outsoles dry, pull all of the straps into place and slide the sandals onto your feet. To achieve the best fit, you will need to tug the crisscross straps into their slots at an angle. Adjust the fit and secure the tabs underfoot with masking tape. If any straps overlap underfoot, trim them so they just meet toward the middle. If you are using vegetable-tanned leather, the straps should fit snugly; the leather will stretch over a few wears and result in a perfect fit. If you are using a more processed leather, or a thin leather with a thin leather lining, aim for a more comfortable fit from the beginning. Try walking around with the straps taped in place to check on the fit. If adding the buckle would help you with the fitting process, skip to step 13 and install the buckles and rivets now, then return to step 7.

7. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline where each tab lands with a permanent marker. You can reuse your tape to hold the outside edge of each tab like a hinge so it doesn't slip out of place while you do the next step.

ABOVE: ***2.*** *Creating the crisscross*

ABOVE: ***4.*** *Cutting slots*

ABOVE: ***5.*** *Shaped leather soles*

8. **Scratching and Gluing.** Give texture to the underside of each tab and the areas where the tabs will land. Apply glue to the scratched surfaces, wait until the glue looks tacky and clear, and press the layers together. Slip on the sandals and see if anything needs to be adjusted or corrected. If so, do it now: pull the tab up and reglue in the preferred place. When you're happy with the fit, position the upper over a sturdy table, an anvil, or the floor. Hold the straps out of the way while you gently hammer the areas where the tabs meet the footbed. This helps the glue bond.

9. **Skiving.** Use your knife blade to skive the edges of the tabs for a smooth feel underfoot. Be patient and work carefully. Try the sandals on to make sure there are no spots of discomfort. When you feel you've done enough skiving, rough up the entire bottom of the upper, including the tabs. Give extra texture around the outer edge, as that is the likeliest place that could someday come apart with wear.

10. **Joining Soles and Heels.** Scratch up the top of both heel blocks and the bottom of the outsoles where the heels will go. Apply glue to these four areas and wait for the glue to get tacky. Carefully join the heel blocks to the outsoles and hammer the top of the soles onto the heels over a sturdy surface. Close up any gaps with additional hits with the hammer. Secure the heels onto the outsoles with heel nails.

11. **Scratching and Gluing.** Scratch up the underside of the upper as well as the entire top of the now-dry heavy leather outsoles. Apply glue over both of these texturized surfaces and wait 5–10 minutes for the glue to become tacky.

12. **Joining Uppers to Leather Soles.** Carefully join the layers together, keeping the footbed's edges aligned with the outsoles. Press the surfaces together with your fingertips and then gently hammer over a sturdy table, an anvil, or the floor. Try on the sandals and use your body weight to further compress the layers.

ABOVE: ***12.*** *Joining uppers to leather soles*

13. **Adding Buckles.** Try on your sandals and use a pencil to mark where on your ankle strap your buckle should go. A common place is just below, and a little in front of, the ankle bone. Attach the buckles and rivets as described here.

ABOVE: ***13.*** *Adding buckles*

14. **Sanding and Trimming.** Sand the edges with a belt sander, if you have one, or take the sandals to a cobbler to sand. If you sanded the edges yourself, you will need to trim away the top edge of the footbed using a knife for the sides and scissors for the curves at the toe and heel. Take off as little material as possible, working at a 45-degree angle.

15. **Edge Finishing.** Apply an edge finish or leave the edges raw.

Lace-up Sandals

One time, a 9-year-old girl took my class with her mother and asked to make a sandal that she could grow into. I thought this was a clever request and was excited to think up a style that would satisfy her. What we came up with was a fully lace-up design, allowing for a flexible fit. In a sense, this is a version of ghillies, lace-up shoes worn for traditional Irish and Scottish dancing. Variations on this style are endless fun and you can relax a bit because the fit is forgiving.

TOOLS

- Pencil and permanent marker
- Scissors
- Knife

Awl or rougher tool

Hammer

Rotary hole punch

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout F) and blank paper

2' square medium-weight upper leather (4/5 ounce or similar)

1' square thick footbed leather (9/10 ounce or similar)

Pair of heavy leather soles

Stacked leather heels (to make your own, see here)

Water-based leather glue or solventbased shoe glue

6 heel nails

Laces

Masking tape

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout F or make your own variations that include a sole, an ankle strap, and two toe pieces per foot. Choose a sole shape slightly larger than your normal shoe size to give yourself

room for error. (You can trim it down later.) Cut out the paper patterns and check that they work on your feet, keeping in mind that they will be laced together later, so allow some space between all the pieces. If you have a small foot, check that the toe and ankle patterns don't overlap near the middle of the foot. Each pattern piece should land in its own zone on the sole. If they do overlap or are very close, alter the upper pattern pieces now. (Simply pinch out a little material in the back of the heel or trim down the patterns so they don't crowd each other.) Make sure that your upper patterns extend at least 1" underfoot. You may want to mark one side of the patterns with an *R* for the right side to prevent confusion when you trace onto leather.

2. **Tracing and Cutting.** Trace the upper patterns onto your upper leather and the sole patterns onto both the footbed leather and the heavy leather soling. Before you start cutting your leather, make sure you have a right and left sole shape for both your footbed and outsole! Cut out all the shapes, being sure to cut inside your lines on the straps and footbed so no marks remain on your shoes. Use a knife to cut out the outsole patterns. Be patient and remember that dampening the stiff leather will make it easier to cut.

ABOVE: ***1.*** *Taping patterns to check the fit*

ABOVE: ***2.*** *Tracing*

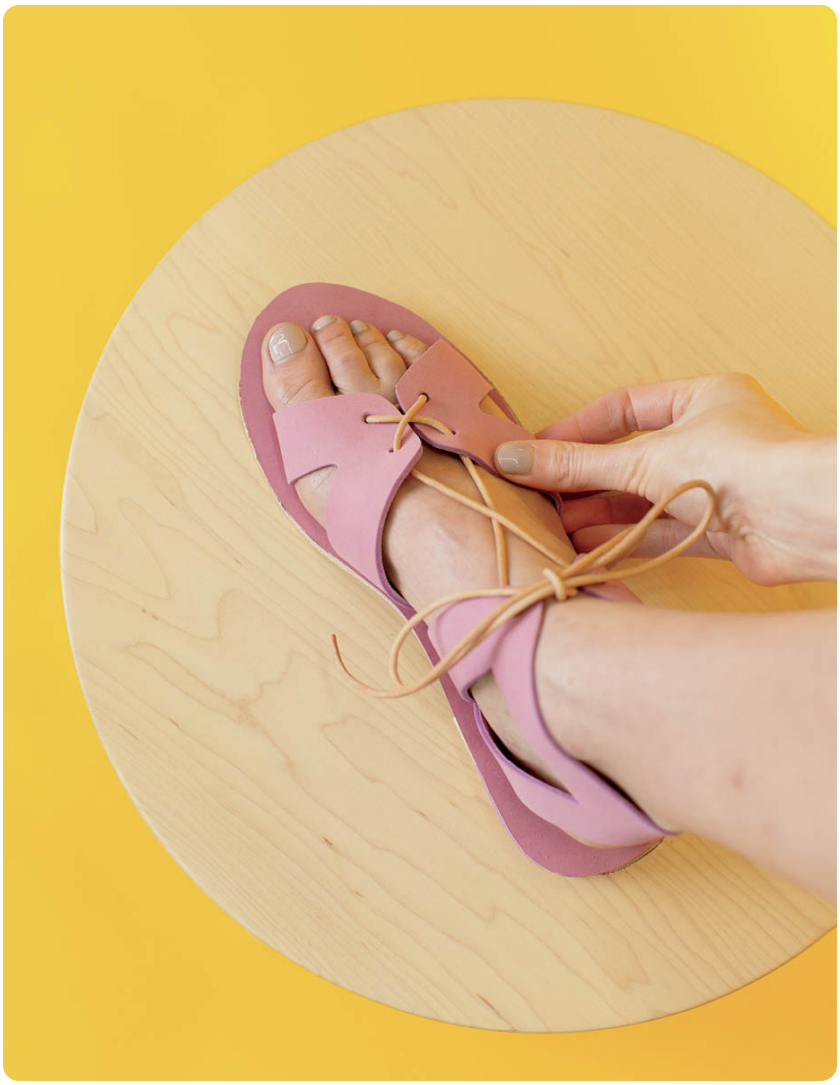
3. **Shaping Leather Soles.** Soak outsoles in water for about 15 seconds, then follow the instructions to shape them, adding a toe spring and arch support. Set your heel blocks under the outsoles while they dry for 24 hours.

4. **Joining Soles and Heels.** Once the outsoles are dry, scratch up the top of both heel blocks and the bottom of the outsoles where the heels will go. Glue the heels in place using the instructions. Secure the heels onto the soles with heel nails.

5. **Adding Laces.** Because the laces are an important part of this style, it's helpful to make your lace holes now. Decide

whether you want one hole or two on each strap, then mark with a pencil where they will go. Use the rotary hole punch to punch these out, choosing a setting that is large enough to let the laces pass through easily. Cut two laces that are each long enough to weave through all your straps and tie a bow. Lace them through now. Doing so will seem awkward at first, but will help the sandal come together correctly.

6. **Draping and Marking.** Place one foot on a footbed, drape the straps over your foot and tuck the tabs underfoot to keep them in place. Your pinkie toe should be covered by the front strap. If the toe strap is any farther back, your foot might push forward in the sandal. Position the back of the ankle strap snugly against your heel. When you've decided where the straps look best, mark a dot where the edge of each strap hits the footbed about ⅜" in from the outside edge. The space between both your toe pieces and your ankles pieces should be about ½".



ABOVE: ***6.*** *Draping leather straps*

7. **Dots and Slots.** Punch out these dots with your rotary hole punch on the smallest setting, then place this footbed face-to-face with the other footbed and transfer the dots with a pencil or an awl. Punch out these dots, too, and connect each pair of holes with parallel cuts to create each strap's slot.

8. **Fitting.** Slide the straps of both sandals into place and begin to adjust the straps to fit your feet. This may require tugging the tabs at an angle. Secure the bottom tabs with masking tape. Make sure your laces are pulled through all of the lace holes and tied at the top so you're sure to get the right fit of the straps. Keep tweaking the fit until you are satisfied.

9. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and use a permanent marker to outline where on the bottom of the footbed each tab lands. You can reuse your tape to hold each tab from its outside edge like a hinge so it doesn't slip out of place while you do the next step.

ABOVE: ***7.*** *Connecting the Dots*

ABOVE: ***7.*** *Cutting slots*

10. **Scratching and Gluing.** With an awl or rougher tool, add texture to the underside of the tabs and to the areas outlined on the bottom of the footbeds. Apply glue to all these surfaces, minding drying times. When the glue is tacky and no longer wet, carefully press down each tab within the lines you drew. Try the sandals on to check the fit. If you need to adjust a strap, peel it up and reglue it in the corrected position. When you're satisfied with the fit, hammer to bond.

11. **Skiving.** Use your knife blade to skive the edges of the tabs for a smooth feel underfoot. Be patient and refer to the instructions. Alternatively, you can make a midsole using the instructions. Try the sandals on to make sure there are no spots of discomfort.

12. **Joining Uppers to Leather Soles.** Rough up the entire bottom of the shoe uppers, including the tabs, creating extra texture around the entire outside edge of each sandal. Rough up the entire top side of the now-dry heavy leather outsoles. Apply glue to all of these surfaces and wait for the glue to become tacky.

13. Carefully join the layers together, making sure all of the upper's edges align with the edges of the outsole. After pressing the surfaces together with your fingertips, gently hammer over a sturdy table, an anvil, or the floor. Try the sandals on and use your body weight to further compress the layers.

14. **Sanding and Trimming.** Finish your sandals by sanding the edges with a belt sander (see here) or take your sandals to a cobbler to have them edge finished. If you sand the edges yourself, afterward trim away the top edge of the footbed using a knife for the sides and scissors for the curves at the toe and heel. Take off as little material as possible, working at a 45-degree angle.

Modern Sandals

The shoes I find in stores are often covered in unnecessary stitching, hardware, and logos. The Modern Sandal is my antidote to this phenomenon; the straight lines lend an architectural look, and the one simple stud closure is a refined and reliable way to keep the sandal on.

I lined a thin patent leather with a thin vegetable-tanned leather to create this sandal. You can either line two thin leathers for the uppers or use a single layer of medium-weight leather. This project builds on previous projects and shows you how to make a midsole layer and place clinching nails in your sandal. These added steps require a shoe anvil. If you don't have one, simply skive instead of making a midsole in step 12 and skip step 14.

TOOLS

- Pencil and permanent marker
- Scissors
- Knife

- Straightedge
- Rotary hole punch
- Awl or rougher tool
- Hammer
- Shoe anvil (optional)
- Belt sander (optional)
- Stud hole punch (optional)
- Wooden or rawhide mallet (optional)

MATERIALS

- Pattern pieces (see Patterns Foldout B) and blank paper
- 1' square thick footbed leather (9/10 ounce or similar)
- 1 ½' square lightweight upper leather (2/3 ounce or similar)
- 1 ½' square leather lining (2/3 ounce or similar)
- Stacked leather heels (to make your own, see here)
- 4 double-cap rivets
- Masking tape
- Pair of heavy leather soles
- Water-based leather glue or solvent-based shoe glue

6 heel nails

1' square midsole leather (optional)

20 brass clinching nails (optional)

Edge paint (optional)

2 screw-back studs

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout B or make your own variations that include a sole shape, a toe strap, a main strap, and both a long and short ankle strap. Cut out the paper patterns and check that they work on your feet, making sure that your upper patterns extend at least 1" underfoot when pulled against your foot. One of the ankle straps will be riveted to the other strap, so they should overlap about 1".

2. **Tracing and Cutting.** Trace a right and left sole pattern onto the footbed leather and cut out. If you would like to line the upper of this sandal, as I did, trace all your strap patterns, adding a small halo all the way around, onto both the thin upper leather and the lining leather. Follow the lining instructions. If you are using a medium-weight upper leather and not lining, simply trace your shapes and use a straightedge to cut out. Trace your sole patterns onto the heavy leather soling, dampen the soling leather, and carefully cut out with a knife.

3. **Draping and Marking.** Place one foot on your footbed leather with your heel block slid underneath. Drape the toe strap over your foot with the pinkie toe mostly covered, but allowing the other four toes to show. Mark with your awl where this strap lands.

4. With the main strap draped in place, tuck the ankle straps under the main strap and secure with tape as you adjust the angles. The longer part of the ankle strap should be on the inside of your foot and the shorter part of the strap should be on the outside of your foot. Tuck the ends of the ankle straps at least ¾" under the main strap to account for the rivet. Adjust the angle of the ankle straps so that the two thin pieces overlap below your ankle, on the outside of your foot. This is where you will place the stud in step 17. The back of the ankle strap should be snug against your heel. When everything is taped to your liking, mark a dot where each edge of the main strap hits the footbed, about ⅜" in from the footbed edge.

5. **Adding Rivets.** When you're happy with the angle at which the main strap meets the ankle straps, use a rotary hole punch on the 3 mm setting to punch through both layers of the straps where they overlap. Set rivets using the instructions. Label this ankle strap with a small *R* or *L* to indicate right or left, then arrange the second sandal's straps in the same configuration. Tape in place and set these rivets as well.

6. **Dots and Slots.** With your rotary hole punch on the smallest setting, punch out the dots you marked on your footbed in step 3. Place the footbeds face-to-face and use a pencil or awl to transfer your dot marks to the second footbed. Punch out those dots, and with your knife cut the slots between each pair of punched holes.

7. **Shaping Leather Soles.** Soak the heavy leather outsoles in water for about 15 seconds, or until fully saturated, then shape them to provide a toe spring and arch support, following the instructions. Slide your heel blocks under the outsoles while they dry for 24 hours.

8. **Fitting.** While the outsoles dry, pull the straps into place and slide the sandals onto your feet. Begin to adjust the fit, securing the tabs underfoot with masking tape. Using one piece of tape for each tab allows you to adjust one tab at a time without disturbing the others. If any straps overlap underfoot, trim them so they just meet toward the middle.

9. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline with a permanent marker where each tab lands. You can reuse your tape to hold each tab from the outside edge like a hinge so it doesn't slip out of place while you do the next step.

10. **Scratching and Gluing.** Using an awl or rougher tool, scratch up the surfaces on the underside of the tabs and on the bottom of the footbeds where the tabs will be glued.

Apply glue to the scratched surfaces and wait for the glue to get tacky. Press the tabs into place and try on the sandals. If anything needs to be adjusted, pull the tab up, correct the position, and reglue it. When you are satisfied with the fit, hammer the footbeds to secure the bond.

11. **Joining Soles and Heels.** Once the outsoles are dry, scratch up the top of both heel blocks and the bottom of the outsoles where the heels will go. Apply glue to these four areas and wait for the glue to get tacky. Join the heel blocks to the outsoles and hammer downward on the top of the outsole, with the heel positioned over a sturdy table or an anvil. Secure the heels onto the outsoles with heel nails.

12. **Midsoles or Skiving.** Trace a right and a left sole shape onto the midsole leather, leaving a ⅜" halo all the way around the pattern; this extra space will come in handy later. Follow the instructions to finish the midsoles. As an alternative to creating a midsole layer, you may skive your tabs so they feel smooth underfoot (see here).

ABOVE: ***12.*** *Making midsoles*

13. **Joining Uppers to Leather Soles.** After your midsole is attached, rough up the entire bottom of the upper/midsole, as well as the entire top of your stiff leather outsoles. Glue these together, minding the drying time of the glue you're using. Carefully join the layers together, making sure all the upper's edges align with the edges of the outsole. After pressing the surfaces together with your fingertips, gently hammer over a sturdy table, an anvil, or the floor. Try the sandals on and use your body weight to further compress the layers.

14. **Nails.** One at a time, slide each sandal onto the shoe anvil with the outsole facing up. Hammer small brass clinching nails into all the strap areas following the directions. These nails will act as little staples compressing the sandal's layers.

15. **Sanding and Trimming.** Smooth the sandal's sole edges by sanding with a belt sander, or take the sandals to a cobbler to finish the edges. If you sand the edges yourself, afterward trim the remaining top edge of the footbed leather using a knife for the sides and scissors for the curves at the toe and heel. Take off as little material as possible and work at a 45-degree angle.

16. **Edge Finishing**. You may choose to leave your sandal edges raw, which looks perfectly nice, or you may apply an edge paint as I did. For this sandal, I chose a black edge coat to match the upper color.

ABOVE: ***16.*** *Edge finishing*

17. **Adding Studs.** It's wise to save the hardware until the very end because you never know exactly how the sandal will fit until it is fully constructed. Try your sandals on and use a pencil to mark the ideal spot where the stud will go. Follow the instructions to install your screw-back studs.

ABOVE: ***17.*** *Adding studs*

Colorblock Sandals

These sandals remind me of a pair I wore as a kid. The straps weave in and out, wrapping around each other, in a fun mix of colors. The studs provide an easy way to open and close the straps. I painted the sole edges of these sandals with acrylic paint to make them especially playful.

TOOLS

Pencil and permanent marker

Scissors

Straightedge

Knife

3/4" oblong punch (optional)

Wooden or rawhide mallet (optional)

Rotary hole punch

Awl or rougher tool

Hammer

Shoe anvil (optional)

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout B) and blank paper

2' square upper leather (4/5 ounce or similar, from a mixture of colors)

1' square thick footbed leather (9/10 ounce or similar)

Pair of heavy leather soles

Stacked leather heels (to make your own, see here)

Masking tape

Water-based leather glue or solvent-based shoe glue

1' square midsole leather (optional)

6 heel nails

20 brass clinching nails (optional)

2 screw-back studs

Acrylic paint for sole edges (optional)

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout B or make your own variations that include a sole shape, an interlocking toe strap, a strap that wraps around the ankle, and two anchors per foot. (Anchors are what I call the little leather pieces that hold another piece, such as an ankle strap, in place.) Cut out your paper patterns and check that they work on your feet. Make sure that your upper patterns extend at least 1" underfoot when pulled snugly against your foot.

2. **Tracing and Cutting.** Trace the sole pattern onto the footbed leather and all of the upper shapes onto your upper leather. Before you start cutting your leather, make sure you have both a right and left sole shape! Use a straightedge to cut out all the shapes just inside your lines so no marks remain on your shoes.

3. **Preparing and Shaping Leather Soles.** Trace your sole pattern onto the heavy leather soling and soak the soles in water for about 15 seconds, or until fully saturated, then patiently cut the shapes out with a knife. Shape them using the instructions, adding a toe spring and arch support to

each. Place the outsoles over the heels and let dry for 24 hours.

4. **Punching Slots.** With heavy scrap leather underneath, position the anchor straps over a sturdy table or an anvil. Using a 3/4" oblong punch and mallet if you have them, punch out two slots at the top of each anchor where you'd like your ankle strap to pass through. If you don't have an oblong punch and mallet, make two dots where you'd like each slot on each anchor strap. With your rotary hole punch on the smallest setting, punch out these dots, then hand-cut the slots by making parallel lines to connect each pair of dots.

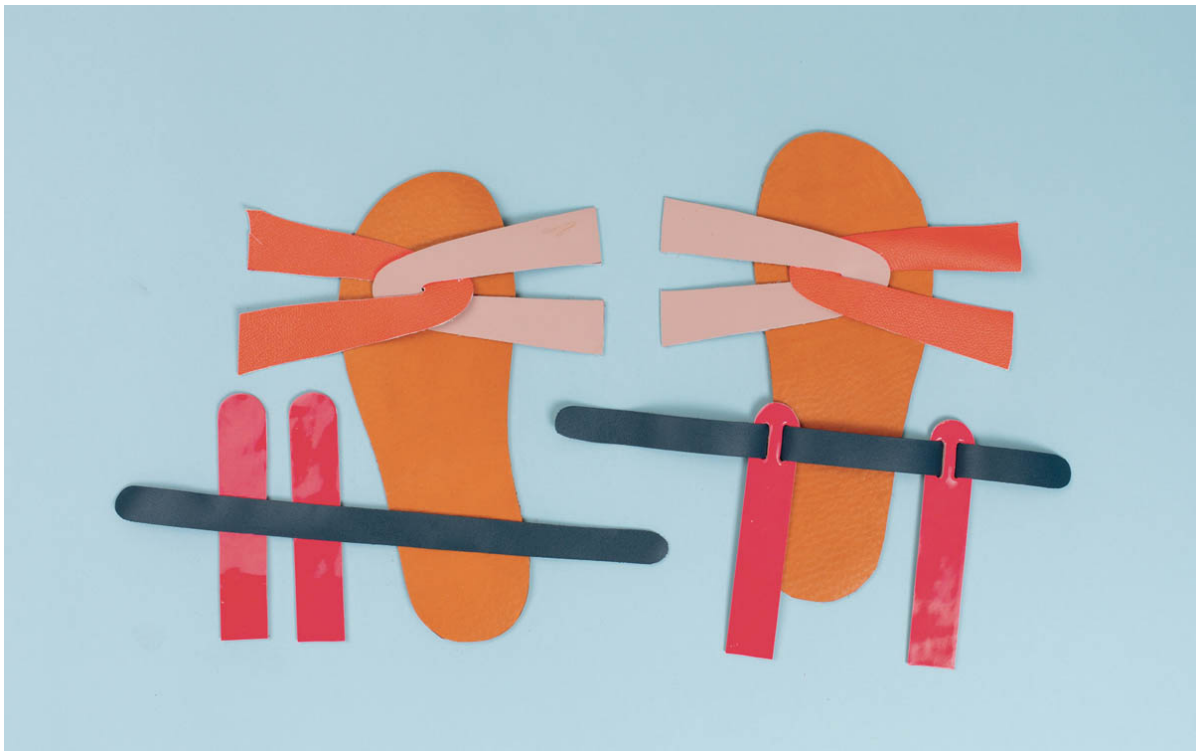
5. Cut one end of each ankle strap at a diagonal. This will make it easier to weave through the slots. Slide the anchors onto each long ankle strap so they are close to where you want them to sit once the sandal is constructed.

Note: There are two ways to weave the strap: one way makes the edges of the anchor pieces flare out, the other keeps them tucked underneath the strap, as shown at far right.

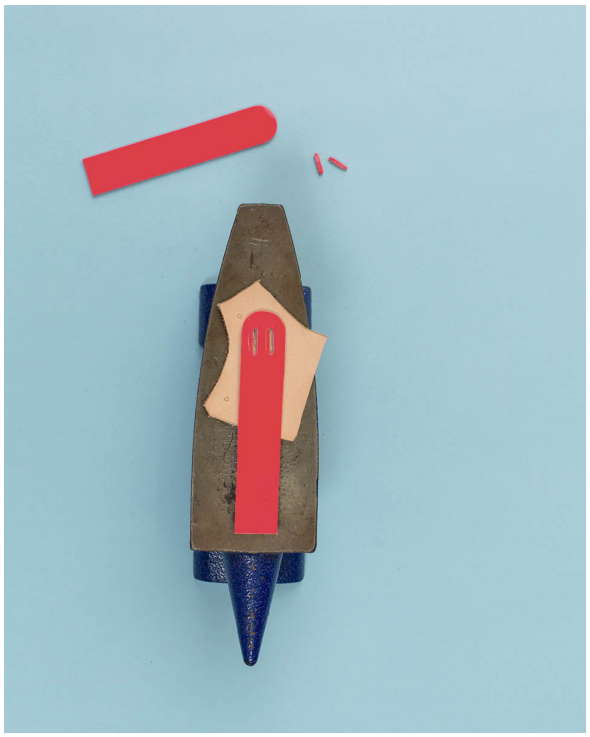
6. **Draping and Marking.** Place one foot on a footbed with your heel block slid underneath. Drape the toe straps over your foot and mark a dot on the footbed where each edge of each strap lands, about 3/8" from the outside edge. Also drape the ankle anchors where they feel most comfortable. Usually this is right below the ankle bone.

7. **Dots and Slots.** Punch out the dots you made in step 6 using the smallest setting on the rotary hole punch. Place the first footbed face-to-face with the second footbed and use an awl or pencil to transfer the placement of the dots. Punch out these dots, too, and make the slots for your straps to drop into by connecting the pairs of holes with parallel cuts.

8. **Fitting.** Slide all of the straps into the slots and secure the tabs on the bottom of the sole with masking tape. If you are using vegetable-tanned leather, the straps should fit snugly; the leather will stretch over a few wears and result in a perfect fit. If you are using a more processed leather, or a thin leather with a thin leather lining, aim for a more comfortable fit from the beginning. Walk around with the straps taped in place to check the fit.



ABOVE: ***2.*** *Upper pieces*



ABOVE: ***4.*** *Punching slots*

Note: *The two parallel slots in the anchor straps are where you will weave through the ankle strap. I like to use a punch that is the same width as the ankle strap (in this case, 3/4").*

ABOVE: ***7.*** *Punching Dots*

INSTRUCTIONS

9. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline where the tab lands with a permanent marker. You can reuse your tape to hold each tab from the outside edge like a hinge so it doesn't slip out of place while you do the next step.

10. **Scratching and Gluing.** Using an awl or rougher tool, scratch the underside of each tab and the areas where the tabs will land. Apply glue to all these surfaces, minding drying times. When the glue is tacky and no longer wet, press down each tab carefully within the lines you drew. Try the sandals on to check the fit. If you need to adjust a strap, peel it up and reglue the tab in the corrected position. When you're satisfied with the fit, hammer to secure the bond.

11. **Midsoles or Skiving.** If you have a shoe anvil, you might choose to make a midsole layer. Trace a right and left sole shape onto midsole leather, leaving a 3/8" halo all around the pattern. Finish making the midsole layer following the instructions. Alternatively, you may skive your tabs so you don't feel them underfoot.

12. **Joining Soles and Heels.** Scratch up the top of both heel blocks and the bottom of the now-dry heavy leather outsoles where the heels will go. Apply glue to these four areas and wait for the glue to get tacky. Carefully join the heel block to the outsole and, working over a sturdy table or an anvil, hammer the sole downward onto the heel. Close up any gaps with additional hits with the hammer. Secure the heels onto the outsoles with heel nails.

13. **Joining Uppers to Leather Soles.** Scratch up the underside of the uppers as well as the entire top of the outsoles. Apply glue over both of these texturized surfaces and wait 5–10 minutes, or until the glue becomes tacky. Carefully join the layers together, aligning the outside edges of the uppers and outsoles. After pressing the surfaces with your fingertips, gently hammer them over a sturdy table, an anvil, or the floor. Try the sandals on and use your body weight to further compress the layers.

14. **Nails.** If you have a shoe anvil, slide your sandal onto it with the sole facing up. Hammer brass clinching nails where each strap tab is located, as described. If you don't have a shoe anvil, you can skip this step.

15. **Adding Studs.** Following the directions, install a screw-back stud on each ankle strap so it sits just in front of the outside anchor strap. Mark where you want the buttonhole shape that will fasten over the stud, and punch that as well.

16. **Sanding and Trimming.** Sand the edges with a belt sander, or take your shoes to a cobbler to have them edge finished. If you sanded the edges yourself, trim the top edge around the footbed following the instructions.

17. **Edge Finishing.** Apply an edge finish, if you'd like, to the sides of the soles and heels. Here, I painted the sole edges with acrylic paint. It's a little unconventional, but totally works!

ABOVE: ***14.*** *Nails*

ABOVE: ***15.*** *Marking where the stud will go*

ABOVE: ***17.*** *Edge finishing*

Sport Slides

You may be seeking the simplest and most utilitarian style: slides. But as effortless as they seem, they can be a little fussy because you need the single strap both to be comfortable while you walk *and* to keep your foot in place without the use of hardware or laces. The little cutout dart in this design allows for a more manageable fitting process. A sling-back strap can be added when you're finished — or even later on, if you choose.

TOOLS

Pencil and permanent marker

Scissors

Straightedge

Knife

Rotary hole punch

Awl or rougher tool

Hammer

Belt sander (optional)

MATERIALS

Pattern pieces (see Patterns Foldout A) and blank paper

1' square medium-weight upper leather (3/4 or 4/5 ounce)

1' square thick footbed leather (9/10 ounce or similar)

Masking tape

Solvent-based shoe glue

1' square midsole leather (optional)

Pair of rubber outsoles

4 double-cap rivets (optional, if adding sling-back strap)

2 screw-back studs or 2 buckles (optional, if adding sling-back strap)

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout A or make your own variations that include a sole shape and a wide toe strap. The little triangles that peek into either side of the toe strap serve as above-ground darts that will make the fitting process go more smoothly. Cut out your patterns and check that they will work on your feet. Larger feet may need a wider strap, and small feet might need less material. You can also alter the depth and shape of the dart. Make sure that your upper patterns extend at least 1" underfoot when pulled snugly against your foot.

2. **Tracing and Cutting.** Trace the strap patterns on the upper leather and the sole shapes on the footbed leather. Before you start cutting your leather, make sure you have both a right and left sole shape! Use a straightedge to carefully cut out all of the pieces, cutting just inside the lines so you leave no marks on your leather.

3. **Draping and Marking.** Place one foot on your footbed leather and drape the toe strap over your foot. Once you've found the place where the strap looks best (usually with four toes visible, and just covering the pinkie toe), mark a dot on the footbed where each edge of the strap lands, about 3/8" in from the outside edge. Be sure to mark dots where the edges of the darts land as well.

4. **Dots and Slots.** With the rotary hole punch on the smallest setting, punch out all the dots you made in step 3. Place that footbed face-to-face with the other footbed and use a pencil or awl to transfer the dot placements to the second

footbed. Punch out the dots on that footbed, too, and with your knife connect the pairs of dots with curving, parallel cuts to create the slots where the strap will tuck into the footbed.

5. **Fitting.** Pull the straps into their slots and slide the sandals onto your feet. To achieve the best fit, you may need to tug the straps at an angle or adjust the darts by making them wider or deeper to give the toe strap an attractive shape. Continue to adjust the fit, securing the tabs underfoot with masking tape. If any straps overlap underfoot, trim them so they don't. Tape the tabs in place and walk around to check the fit.

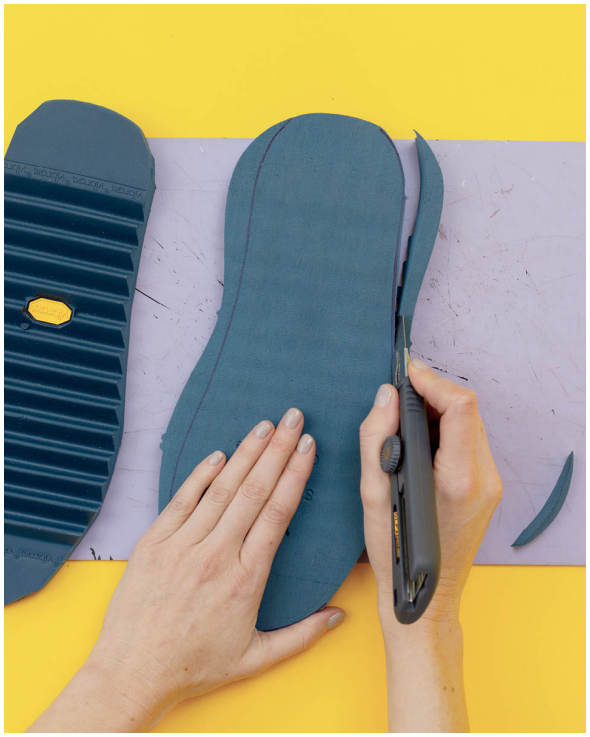
   Because this style relies on only one strap, you most likely will need to work for a while to make sure this strap does all the things you need it to: keeping your foot in the right place on the sole, not puckering in any spots, and opening enough in the back to allow your foot to slip into place. If you are using vegetable-tanned leather, the strap should fit snugly; the leather will stretch over a few wears and result in a perfect fit. With other leathers you should aim for a more comfortable (not too tight) fit from the beginning.

6. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline where the tab lands with a permanent marker. You can reuse your tape to hold each tab along the outside edge like a hinge so it doesn't slip out of place while you do the next step.

7. **Scratching and Gluing.** Using an awl or rougher tool, scratch the underside of each tab and the areas where the tabs will land. Apply glue to all these surfaces, minding drying times. When the glue is tacky and no longer wet, press down each tab carefully within the lines you drew in step 6. Try the sandals on to check the fit. If you need to adjust a strap, peel it up and reglue it in the corrected position. When you're happy with the fit, place the shoe over a sturdy table, an anvil, or the floor. Holding the straps out of the way, gently hammer the areas where the tabs meet the sole. This helps the glue bond.

ABOVE: ***1.*** *Checking patterns*

ABOVE: ***5.*** *Assessing the fit*



ABOVE: ***9.*** *Preparing rubber soles*

ABOVE: ***10.*** *Joining rubber soles to the uppers*

INSTRUCTIONS

8. **Midsoles or Skiving.** If the leather you chose for your upper strap is on the thicker side and you can feel the tabs underfoot when you slip on your sandals, you might want to make a midsole layer. See instructions on making midsoles. If, on the other hand, your leather is somewhat thin and you can barely feel the tabs underfoot, you could skip the midsole and instead skive the tabs so that the tabs feel flatter — but not so much that the attachment

becomes weak. Try the sandals on to make sure you've skived enough.

9. **Preparing Rubber Soles.** Trace a right and left sole pattern onto your rubber soling material, adding a halo of about $^{3}/_{8}$" all the way around to produce a sole shape larger than your finished size. This will make it easier to successfully place the upper onto the sole later. Cut out the sole shapes roughly with a knife.

ABOVE: 9. *Preparing rubber soles*

Sling-Back Strap

A sling-back strap can provide additional security to a slide. It connects to the main strap with a rivet on the inside of the sandal and with a stud or buckle on the outside of the foot. Set your rivets so that the straps extend at an angle that will hug the top of your heel. Attach the hardware using the directions.

10. **Joining Rubber Soles.** Scratch up the bottom of both uppers, making sure to rough up the outer edges of the sandals especially well, as this is where the glue is most likely to weaken later. In a well-ventilated area, apply solvent-based glue to both surfaces, wait until it is tacky, then apply another coat to both surfaces, and again wait for it to get tacky. Hover the upper over the outsole, then slowly lower it into place. Try to incorporate a bit of toe spring and arch lift when you join these layers, as

explained. After pressing the surfaces together with your fingertips, gently hammer the layers together. Try the sandals on and use your body weight to further compress the layers.

11. **Trimming.** If you plan to sand the edges of your sandals, you'll still want to trim off the excess rubber, but it won't need to be perfect. If you don't have a belt sander, you can still get a clean edge by cutting by hand. Place the sandal faceup in your lap and extend a sharp knife blade out about 2", then lock it. Enter the knife blade perpendicular to the rubber soling and use the footbed edge as a trimming guide. Pull your blade steadily through the rubber all the way around the sandal as fluidly as possible.

12. **Sanding.** Sand the edges with a belt sander if you have one or take your shoes to a cobbler to have them edge finished. After sanding, trim up the very top edge of the sole with a knife and scissors.

Fisherman Sandals

This sandal is so versatile. It's adorable on children, good-looking on both men and women, and can be styled in a fashionable or casual way. Woven straps make the fit cozy, flexible, and easy to achieve. A version of a fisherman sandal is found in almost every culture; the name refers to the straps, which are woven like a net. You can make this a tying sandal, as pictured, or alter the ankle strap to buckle instead.

TOOLS

Pencil and permanent marker

Scissors

Knife

- Ruler or straightedge
- Oblong hole punch, approximately as wide as your thin straps (optional)
- Wooden or rawhide mallet (optional)
- Rotary hole punch
- Awl or rougher tool
- Hammer
- Shoe anvil (optional)
- Belt sander (optional)

MATERIALS

- Pattern pieces (see Patterns Foldout D) and blank paper
- Masking tape
- 1' square thick footbed leather (9/10 ounce or similar)
- 2' square medium-weight upper leather (4/5 ounce or similar)
- Pair of rubber lug outsoles with heel (or any soling of your choice)
- Solvent-based shoe glue
- 1' square midsole leather (optional)
- Leather laces

1. **Preparing Patterns.** Trace patterns from Patterns Foldout D or make your own variations that include a sole shape, ankle strap, tongue piece, and five long, thin toe straps for each foot. Cut out the paper patterns and check that they extend at least 1" underfoot when pulled against your foot. You may find it helpful to gently tape the tongue pattern to the horizontal pattern pieces while you determine if everything fits together correctly. If you plan to use an oblong punch, make sure it's the same width as the thin straps.

2. **Tracing and Cutting.** Trace a right and left sole pattern onto the footbed leather and cut out. Trace the ankle and tongue shapes on the upper leather as well, cutting just inside your lines so no marks remain on your shoes. When cutting many long, straight straps (such as the 10 called for here), I recommend skipping the outlining with pencil or marker. Instead, start by making a straight cut into your leather. Place the paper pattern next to this cut line as a width guide, and place your straightedge next to it. Cut against the straightedge to release your first strap. Put your paper pattern against the new straight line, the straightedge against the pattern, and cut. Repeat until you have cut all of the straps. Doing so will save time and material!

3. **Preparing Rubber Soles.** Trace your sole patterns onto the rubber outsoles and carefully cut them down to size with a

knife. These will be sanded later, so your cuts can be rough as long as the size is approximately correct.

4. **Draping and Marking.** Drape one set of toe straps and a tongue piece over your foot to determine where the thin straps line up best over the tongue. The thin straps should be close to each other, but not so close that their respective slots would interrupt each other. You may want to gently tape the thin straps to the back of the tongue to get the spacing right. Then use an awl to mark a dot on the tongue at each edge of each thin strap, where the slots will pass through the tongue.

5. **Punching Slots.** Position the oblong hole punch and a mallet, if you have them, so that each end lines up with one of the dots you made in step 4, and punch out the slots in the tongue. Alternatively, you can hand-cut the slots. Once you've finished with one tongue, place it face-to-face with the second one and, with a pencil or an awl, transfer the dot placements. Remove the slots on the second tongue and weave all of the thin straps into place.

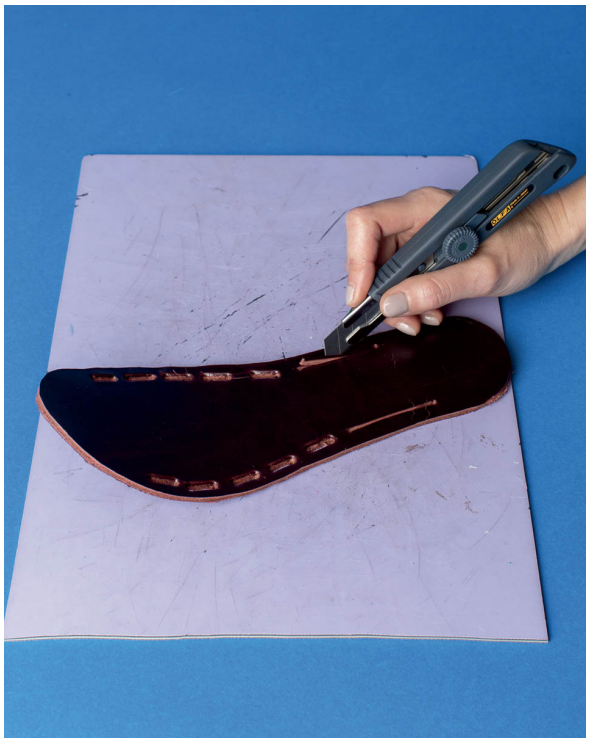
6. **Draping and Marking.** Place one foot on a footbed and drape the woven straps over your foot, adjusting the placement until they look right. The back of the ankle strap should be snug against your heel, and the front toe strap should be far enough forward so that it covers your pinkie toe. None of the straps should touch another strap on the footbed; each strap should have its own landing place.

Mark a dot on the footbed where each edge of each strap lands, about 3/8" in from the outside edge.

7. **Dots, Slots, and Punches.** Make the slots for the front of the sandal using the same oblong punch that you used for the slots on the tongue, or hand-cut the slots. For the longer slots at the ankle, punch the dots on the footbed using the rotary hole punch on the smallest setting, then hand-cut the slots. When you are finished with one footbed, place it face-to-face with the other footbed and transfer the placement of the dots with a pencil or awl. Cut out the slots on the second footbed.

ABOVE: ***5.*** *Punching slots*

ABOVE: ***5.*** *Weaving straps into place*



ABOVE: ***7.*** *Cutting footbed slots*

ABOVE: ***7.*** *Transferring slots to the second footbed*

ABOVE: ***8.*** *Adjusting the fit*

ABOVE: ***12.*** *Scratching before joining rubber soles*

ABOVE: ***12.*** *Creating a toe spring*

ABOVE: ***14.*** *Adding laces*

Tip: *I usually place my lace holes 3/8" from the edge of the strap.*

8. **Fitting.** Pull all the straps into their slots and slide the sandals onto your feet. To achieve the best fit, you may need to tug the straps at an angle. Continue to adjust the fit, securing the tabs underfoot with masking tape. If any straps overlap underfoot, trim them so they meet toward the middle.

9. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time and outline where the tab lands with a permanent marker. You can reuse your

tape to hold each tab along the outside edge like a hinge so it doesn't slip out of place while you do the next step.

10. **Scratching and Gluing.** With an awl or rougher tool, add texture to both the underside of the tabs and the outlined areas on the bottom of the footbeds. Apply glue to all these surfaces, minding drying times. When the glue is tacky and no longer wet, press down each tab carefully within the lines you drew. Try the sandals on to check the fit. If you need to adjust a strap, peel it up and reglue the tab in the corrected position. When you're satisfied with the fit, hammer to secure the bond.

11. **Midsoles or Skiving.** Because this design has so many underfoot tabs, you might make a midsole, or you might choose to skive the edges of the tabs instead. Give yourself the princess and the pea test: try on your half-made sandals, close your eyes, and determine where you feel unevenness underfoot. For this particular sandal, I chose to add a partial midsole to the heel area and to skive the front edges of the tabs. See instructions for skiving and making a midsole.

12. **Joining Rubber Soles.** Rough up the entire bottom of the upper, especially the outer edge of the sandal. Apply glue to the bottom of the uppers and the top of the outsoles and wait 5–10 minutes, or until the glue becomes tacky. Carefully join the layers together and incorporate a bit of toe spring and arch lift, as explained. After pressing the surfaces together with your fingertips, gently hammer

over a sturdy table, an anvil, or the floor. Try the sandals on and use your body weight to further compress the layers.

13. **Sanding and Trimming.** Sand the edges with a belt sander if you have one or take the sandals to a cobbler to have them edge finished. If you sand them yourself, you will notice an imperfect edge on the footbed when you're finished sanding. Trim the top edge of each footbed with a knife and scissors at a 45-degree angle, removing as little material as possible.

14. **Adding Laces.** Try on your sandals and mark dots where you want the lace holes. Punch out these dots using a rotary hole punch that will accommodate the lace you choose. Cut laces that are long enough to tie a bow with, then trim them to the size you'd like.

Hippie Sandals

Long before I made my own shoes, I found a gorgeous old pair of leather sandals at a thrift store. Despite their being a men's size 12, I decided to make them fit me. I added tighter holes to the strap, cut down the sole length, and — because the strap was fully adjustable — they became my favorite sandals. This is a popular design, made by sandalmakers all over the world. I'm calling it the Hippie Sandal here, but you may recognize it by its other moniker: the Jesus sandal.

This sandal consists of one really long strap that passes in and out of slots and wraps around your foot, buckling at the side. Two anchor straps at either side of the heel keep the long strap grounded.

TOOLS

Pencil and permanent marker

Scissors

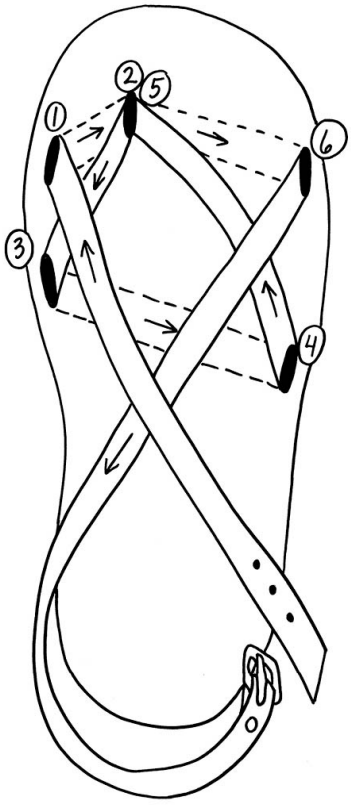
Knife

- Ruler or straightedge
- Strap cutter (optional)
- ½" oblong hole punch (or one that matches your strap width)
- Wooden or rawhide mallet
- Awl or rougher tool
- Hammer
- Rotary hole punch
- Belt sander (optional)

MATERIALS

- Pattern pieces (see Patterns Foldout D) and blank paper
- 1' square thick footbed leather (9/10 ounce or similar)
- 3'×3" medium-weight upper leather (4/5 ounce or similar)
- Masking tape
- 1' square rubber soling material
- Solvent-based shoe glue
- 1' square midsole leather (optional)
- 2 buckles (½" size)
- 2 double-cap rivets

1. **Preparing Patterns.** Trace patterns from Patterns Foldout D or make your own variations that include a sole shape, one very long strap (between 42" and 52" depending on the size of your foot) about ½" wide, and two anchor straps per foot. Cut out the paper patterns and check that they work on your feet. The long strip of paper will wrap around your foot a few times. Keep this strap overly long until the very end of this project, when you will be certain of the final length.



2. **Tracing and Cutting.** Trace a right and left sole onto the footbed leather, and cut them out. For your long upper

straps, I suggest skipping the outlining and jumping straight to cutting. Use a ruler to cut a very long straight line on the upper leather. Repeat that cut parallel to the first line to produce a strip ½" wide. Alternatively, if you have one, use a strap cutter, a hand tool used for pulling long, straight strips of leather. Simply adjust the blade to the desired width and pull along the leather in a straight line. Also trace and cut out your four anchor straps from the upper leather.

3. **Draping and Marking.** Place one foot on a footbed and wrap the long main strap all the way around your foot, mimicking the finished sandal, as pictured. Pay close attention to the diagram above, as the setup can be quite confusing. Let the strap rest under your foot while you get the placement right. Try to nestle the strap where it will be most comfortable: the side of your big toe and behind your pinkie toe, being sure to not make it too tight between your toes. Use a pencil or awl to make a dot everywhere a strap edge meets the footbed. To mark where you want your anchors, you can slide them onto the main strap now or tuck them underfoot where you think they will work best; usually just in front of, or below, the ankle bone.

4. **Punching Slots.** If your main strap is ½" wide, use a ½" oblong hole punch to make slots where the strap will enter the footbed. Place a piece of scrap leather in between the footbed leather and an anvil or sturdy surface, then hit the oblong punch with a wooden or rawhide mallet. When you have all the slots removed from one footbed, place it face-

to-face with the second footbed and transfer the slot placements with a pencil. Punch out the slots in the second footbed. In addition, use the oblong hole punch to make two vertical slots at the top of each anchor piece. You can use this same punch end-on-end to cut the longer slots needed for the anchors, or hand-cut them.

5. **Preparing the Midsole Template.** Before you pull any straps into place, trace one of your footbeds, including slot placement, onto paper. Draw lines on the paper connecting the slots, outlining where the strap pathway will go as it passes underfoot. Cut this pattern out and remove the areas where the strap will pass underfoot. This will be your template for a midsole layer.

ABOVE: ***3.*** *Draping and marking*

ABOVE: ***4.*** *Punching slots*

ABOVE: ***5.*** *Making the midsole template*

ABOVE: ***6.*** *Arranging the long strap*

6. **Fitting.** Slide the anchors onto the long strap and start to pull the long strap through the slots to produce the correct arrangement. This may take a few tries. Secure the anchor tabs on the bottom of the footbed with masking tape when the tabs are the height you like. The beauty of this design is that ultimately the fit will be fully adjustable; only the anchors will be permanently glued down. Ultimately the long strap should start and end at the outside of your foot, near the ankle bone.

7. **Scratching and Gluing.** With an awl or rougher tool, add texture to the underside of the anchor tabs. The long strap will remain unglued. Apply glue to the scratched surfaces and wait for the glue to get tacky. Press the anchor tabs down and try on the sandals. If any tabs need to be adjusted, peel them up and reglue in the corrected position. When you're satisfied with the fit, hammer the anchor tab area to secure the bond.

8. **Making Midsoles.** Once the leather straps are in place, you can pop the paper midsole template onto the underside of the footbed to check that it matches. Correct any discrepancies so that the paper template sits easily on the bottom of the sandal without overlapping at all with any of the straps. The adjustable-strap pathways should have a little extra space for movement. Cut out areas on the paper pattern to accommodate the anchor tabs. Your pattern doesn't need to be perfect; the role of the midsole layer is just to act as a cushion for your foot.

9. Trace a right and left version of your midsole template — including the interior shapes — onto any leather that is the same thickness as your upper. Remember that this is an opportunity to use "bad" leather (anything with marks, brands, or wrinkles). Cut out the midsole layer, and remove the interior shapes, too.

10. Check that the midsoles fit well onto the bottom of your sandals. If they do, scratch the bottom of the upper (avoiding the long strap) and the top of the midsole layer.

Apply glue to the entire top of the midsoles and to the bottom of the uppers, again keeping clear of the strap. When the glue is tacky and no longer wet, slowly lower the midsole onto the upper. Hammer all over to secure the bond.

11. **Preparing Rubber Soles.** Trace the midsole template once more — including the long strap pathways but not the anchor tabs this time — onto your rubber soling material. The interior pathway shapes indicate where you will *not* put glue on the outsole later. This will ensure the adjustable strap can move freely through the sandal.

12. **Joining Rubber Soles.** Using an awl or rougher tool, scratch the bottom of the midsole layer, avoiding scratching the long adjustable strap. Apply glue to the areas you scratched on the midsole and to the same areas on the outsole: everywhere except the paths along which the main strap will land. Wait until the glue becomes tacky, then carefully lay the upper precisely where you want it to land, ensuring that the adjustable strap will be free to move. Press the layers together firmly with your fingertips, then gently hammer together over a sturdy table or an anvil. Try the sandals on, using your own body weight to help compress the layers together.

ABOVE: ***11.*** *Using the midsole template to mark the rubber outsole*

ABOVE: ***13.*** *Marking holes for the buckle*

13. **Adding Buckles.** Adjust the long straps to fit your feet by tugging gently from one end; the strap will move through the passages in the midsole. When the fit is to your liking, install your buckles and rivets following the instructions. The buckle should sit just in front of the outside anchor. Punch out a few holes on the long strap for your buckle tongue, then trim down the long strap.

14. **Sanding and Trimming.** Cut any excess rubber off the edge of the sandals. Then sand the edges with a belt sander if you have one or take your shoes to a cobbler to have them edge finished. After sanding, trim the top edge around the footbed using a knife for the sides and scissors for the curves at the toe and heel. Take off as little material as

possible at a 45-degree angle. This style will require a short breaking-in period. Because two strips of leather emerge from between your toes, the leather will probably need to be softened and stretched with a few wears before it is super comfortable.

Fabric Sandals

I'm always on the lookout for materials that could serve as a decent leather alternative. My favorite so far is quilted fabric, because when layered up, it can mimic the thickness and flexibility of leather. You can use cotton, denim, double-knit polyester, or almost anything else — with a few layers of batting in between.

This project requires some sewing. I used my home sewing machine to make the quilted rectangles of fabric that serve as the main straps, as well as to make the anchors and ropes. You can swap out the fabric ropes for leather laces, cord, ribbon, or fabric strips — lots of options!

TOOLS

Pencil and permanent marker

Scissors

Knife

- Straightedge
- Sewing machine, needle, and thread
- Rotary hole punch
- Awl or rougher tool
- Hammer
- Belt sander (optional)

MATERIALS

- Pattern pieces (see Patterns Foldout D) and blank paper
- 1' square thick footbed leather (9/10 ounce or similar)
- About 4' square fabric total (from a single piece or many scraps sewn together)
- About 2' square cotton or wool batting, or extra fabric, for lining
- 4 cords or laces, each 14"–18" long
- 1' square rubber soling material, plus optional extra for heels
- Masking tape
- Solvent-based shoe glue

INSTRUCTIONS

1. **Preparing Patterns.** Trace patterns from Patterns Foldout D or make your own variations that include a sole shape, a wide toe strap, an anchor shape, and ropes or laces 14"–18" long. Cut out the paper patterns and check that they work on your feet. Make sure that your upper patterns extend at least 1" underfoot when pulled snugly against your foot.

2. **Tracing and Cutting.** Trace a right and left sole pattern onto the footbed leather and cut out. Trace all your upper patterns onto your fabric of choice and cut out using a straightedge to guide you.

3. **Making Fabric Uppers.** How you design and sew your toe straps is up to you! My toe straps consist of woven cotton cloth on top and bottom, plus three layers of wool batting in between. I sewed the cotton trapezoids together inside out, then flipped them right-side out and inserted the batting. I stitched many horizontal lines through all the layers to make strong quilted straps. Don't mind if the ends of the straps are messy; these will be buried under the footbed.

4. Also sew four anchor pieces. Mine are made from the same cotton fabric I used for the toe straps but lined with only one layer of batting. Fold the top edge of the anchor piece down about 1" and stitch it in place to create a loop for the laces to pass through.

5. As an alternative to store-bought laces or ropes, you might choose to sew your own laces. Mine are long strips of the

same cotton fabric, folded lengthwise, pinned and sewn into long strips. Sew two laces to the middle of the longer edge of each quilted toe strap.

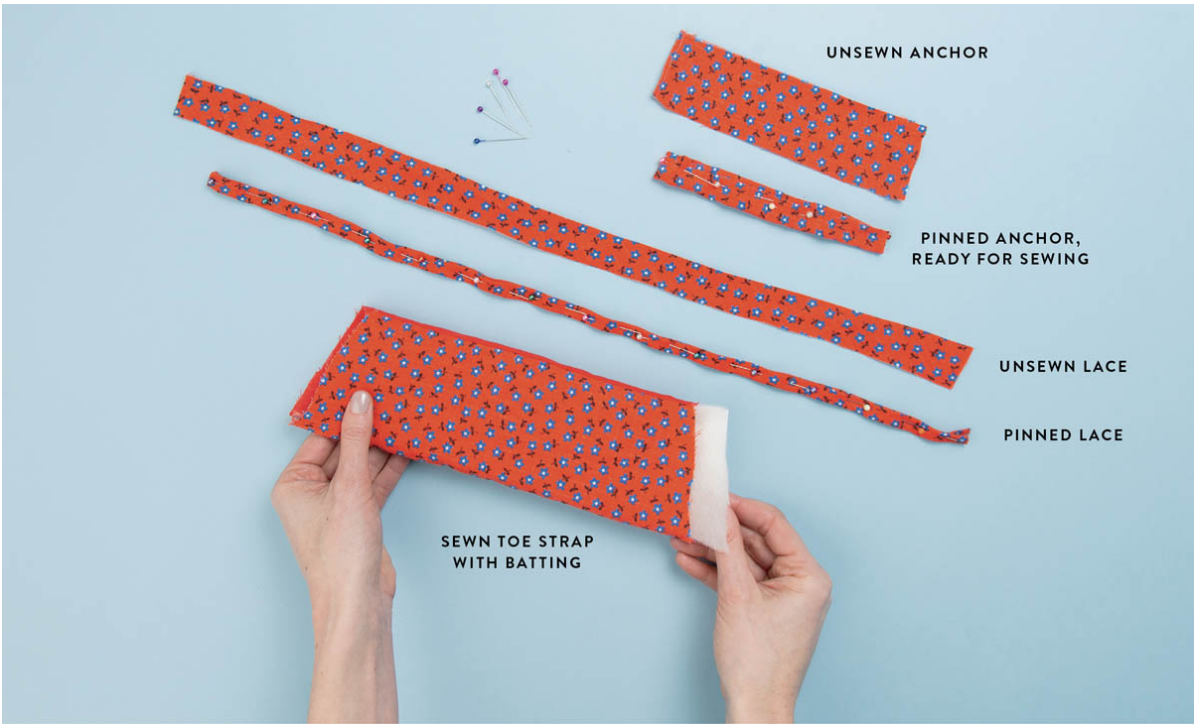
6. **Preparing Rubber Soles and Heels.** Trace the sole pattern onto the rubber soling material, adding a halo of about 3/8" all the way around; this will make it easier to place the upper onto the outsole later. If you want a heel on your sandal, make a heel-shaped template and trace it onto the rubber as well. Cut out the outsoles and heels (if using) roughly with a knife.

7. **Draping and Marking.** Place one foot on the footbed with your rubber outsole and heel (if using) slid underneath. Drape the toe strap over your foot and adjust the placement until it looks right. The toe strap should cover your pinkie toe; this will ensure that the sandal stays on your foot comfortably. When you've found the place where the toe strap looks best, mark a dot on the footbed where each edge of each strap lands, about 3/8" in from the outside edge of the footbed. Mark your anchor locations with dots as well. Usually the anchors are placed just below the ankle bone, but adjust the placement until you find a spot that you find comfortable.

8. **Dots and Slots.** Punch out the dots you made in step 7 with the rotary hole punch on the smallest setting. Place that footbed face-to-face against the other footbed and transfer the dots with a pencil or awl. Punch out the dots on the second footbed and connect the pairs of punch holes with

parallel cuts to create the slots that your straps will drop through.

9. **Fitting.** Slide the upper straps of both sandals into place. You may need to tug them at an angle or cut out triangular darts (see here) so that the toe strap has the proper shape. Secure the bottom tabs with masking tape as you adjust the fit.



ABOVE: ***3.*** *Making fabric uppers*

ABOVE: ***7.*** *Ready to drape*

ABOVE: ***7.*** *Marking*

10. **Outlining.** When you're happy with the fit of both sandals, remove the tape one tab at a time. Use a permanent marker to outline where each tab lands. You can reuse your tape to hold each tab along the outside edge like a hinge so it doesn't slip out of place while you do the next step.

11. **Scratching and Gluing.** Scratch up the outlined areas on the bottom of the footbeds where the fabric tabs will be glued. The fabric itself shouldn't need to be scratched, as it is very porous. Apply glue to the bottom of the fabric tabs and the scratched-up footbed areas, minding drying times. When the glue is tacky and no longer wet, press down each tab carefully within the lines you drew. Try the sandals on

to check the fit. If you need to adjust a strap, peel it up and reglue the tab in the corrected position. When you're satisfied with the fit, hammer to secure the bond.

ABOVE: ***11.*** *Taping Tabs in Place for Gluing*

12. **Skiving.** Try on your sandals and see if you feel any unevenness through the footbed. Because fabric compresses more than leather, you might not feel a thing, in which case you can move on to step 13. If you do feel bumps underfoot, use your knife blade or scissors to remove some of the layers of fabric for a smoother feel.

13. **Joining Rubber Soles.** Rough up the entire bottom of the footbed. (The fabric tabs probably don't need much added

texture.) In a well-ventilated area, apply glue to the entire bottom of the footbed and to the top of the rubber soling. Wait 5–10 minutes, then apply a second coat of glue and wait for that to get tacky. Hover the upper over the outsole and slowly lower it into place. Try to incorporate a bit of toe spring and arch lift when you join these layers, as explained. Press the layers together with your fingertips, then gently hammer them together over a sturdy table, an anvil, or the floor. Try the sandals on and use your body weight to further compress the layers.

14. **Adding a Rubber Heel.** To add an optional rubber heel, line up the heel you created in step 6 with the back of the sandal. Use a permanent marker to outline the front of the heel. Behind this line, sand off the texture of the rubber until it is smooth and flat. Apply glue to this smooth area and to the top of the rubber heel and wait to join until the glue is tacky. Press the layers together with your fingertips, then secure them by hammering together.

15. **Sanding.** If you don't have access to a belt sander, you can hand-cut your rubber edges to a smooth finish following the directions. Or take your sandals to a cobbler to have them edge finished.

    If you do have access to a belt sander, first cut off the excess rubber soling using your knife. Then carefully sand the edges until they are completely smooth, holding the fabric uppers and long straps out of the way while you work.

16. **Trimming.** Brush off the sandals thoroughly after sanding to remove all the rubber dust. Use a knife and scissors to trim away the top edge of the footbed. Lace your rope ends through your anchors.

CHAPTER 4

Shoe Projects

My approach to making closed-toe shoes differs from most traditional shoemakers. My technique uses vegetable-tanned leather to wet-form to the shape of the last. Once dry, you can manipulate the shape's fit as you would with a sandal strap. This method saves time, effort, and supplies and builds on the strategies I introduced in the sandal projects. I recommend reading Closed-Toe Shoes to familiarize yourself with all the steps involved before you start a particular project in this chapter. Be patient with yourself as you construct your first pair of closed-toe shoes; this is a process that will require some thinking ahead and troubleshooting. But I'm positive that with a little experience, you'll be designing and making your own shoes with confidence. Good luck!

Mary Janes

A Mary Jane is a classic style that consists of a round toe and an ankle strap with a buckle. For this project I suggest you use lasts with rounded toes because that will be the easiest shape to pull leather around and evenly distribute the material on the underside. A belt sander and shoe anvil will be very helpful, but it is possible to find work-arounds. This project skips a midsole and clinching nails in order to show how relatively quick and easy shoemaking can be.

Remember, vegetable-tanned leather will soften and darken with wear and exposure to sunshine. Try to embrace the little imperfections, as they will add up to a beautiful patina someday.

TOOLS

- Lasts with a rounded toe, in roughly your size
- Pencil and permanent marker
- Scissors

Knife

Ruler or straightedge

Lasting pliers or chain-nose pliers

Hammer

Rotary hole punch

Awl or rougher tool

Shoe anvil or jack last (optional)

Belt sander (optional)

Oblong punch (matching the width of your ankle strap, optional)

Wooden or rawhide mallet (optional)

MATERIALS

Blank paper

Pattern pieces (see Patterns Foldout C)

3' square medium-weight vegetable-tanned upper leather (3/4 ounce)

1' square thick vegetable-tanned footbed leather (9/10 ounce or similar)

Pair of heavy leather outsoles

About 50 lasting nails

Masking tape
2 stacked heels (to make your own, see here)
Water-based leather glue or solvent-based shoe glue
6 heel nails
2 buckles (matching the width of your ankle straps)
6 double-cap rivets
Leather conditioner or carnauba crème (optional)

INSTRUCTIONS

1. **Patterns.** Use your lasts to create your footbed pattern. Set one last onto paper and trace around it with a pencil, lifting the paper to reach all the contours of the bottom of the last. Stand on the pattern you drew. Ideally your foot will just barely exceed the width of the shape; that is good! The pattern should be ever-so-slightly narrower than your foot. Make sure you have a little wiggle room (about ½") in length at the toes and the heel. If you don't have extra room, simply elongate your drawing at the heel. It's also okay if your big toe drifts off the pattern. That is fairly common, and of course the upper leather will keep all your toes safely inside the shoe. Before you cut the pattern out, add more width to the back half of the pattern toward the heel, making your sketch as wide as the heel block you plan to use. Cut out the pattern and label it *footbed*.

2. To make your outsole pattern, trace your footbed pattern on paper and add about 1/8" all the way around. This ensures that your outsole will have some room for shrinkage, which happens when the heavy leather gets wet. Cut out the pattern and label it *outsole*.

3. Trace the upper patterns from Patterns Foldout C or make your own variations using the process described here. If you create your own pattern pieces, you will need a buckling ankle strap and a piece in the shape of a half-moon to cover your toes. Cut out these paper patterns and check that they work on your feet, making sure that they extend at least 1" under the bottom edge of the last when pulled snugly against it.

4. **Tracing and Cutting.** Trace the upper shapes onto your medium-weight leather and the footbed pattern onto the thick leather. Before you start cutting your leather, make sure you have both a right and left sole shape! Cut out all the shapes just inside your outlines so no visible lines remain. Use a straightedge as a cutting guide to make sure your long straps are straight. Trace a right and left outsole onto the heavy leather soling, dampen the leather, and carefully cut the shapes out with a knife.

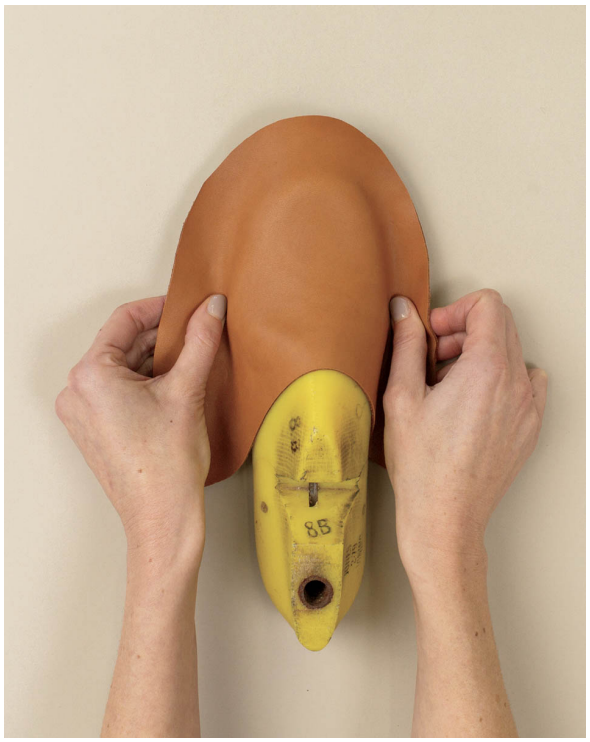
5. **Shaping Leather Soles.** Soak the outsoles in water for about 15 seconds, or until fully saturated. Shape the outsoles, giving them a toe spring and arch lift as described, and place them over the stacked heels. Let these dry for 24 hours.

6. **Lasting.** While the outsoles dry, prepare your workstation with your lasts, the leather for your toe pieces, lasting nails, and either a pair of lasting pliers or a hammer and chain-nose pliers. Consider where on the last you want your leather to land in order to achieve the look you're after. While the leather is still dry, drape it to see what a smaller, or deeper, toe shape might look like. Mark the last with a pencil where you want your leather to land.

7. Soak the first toe piece in water for about 15 seconds, then spread it over the last so no air pockets remain between the leather and the form. When the leather is pulled tight against the last, flip the shoe form upside down and place it in your lap. Place a nail on either side of the bottom of the last to keep the leather in place. Start at the toe and work your way toward the heel. Pull the edge of each section of leather tight with pliers and secure it with a nail, spacing your nails about ⅓" apart. You might be astonished by how much you can force the leather to do what you want. Large wrinkles will form under the edge of the last; just don't let any wrinkles emerge above the edge, as those wrinkles would remain a visible part of your shoe. Repeat with the second toe piece. Let dry for 24 hours.

ABOVE: ***1.*** *Matching the footbed pattern to the heel*

ABOVE: ***3.*** *Checking the upper pattern against the last*



ABOVE: ***6.*** *Forming the leather around the last*

ABOVE: ***7.*** *Lasted toe piece*

8. **Trimming the Wrinkles.** When the toe shapes are fully dry, pull out all the lasting nails with pliers. Remove the leather from the lasts to make sure they are dry on the inside. (If the shapes are still damp, just slide them back onto the forms and give them more time to dry.) With the toe shape on the form, place the last upside down in your lap once more. Use your knife to safely trim away the wrinkles (see here), then compare your two toe shapes. If one differs from the other, cut the larger one to match the smaller so they will be symmetrical.

9. **Fitting.** Slide each footbed into its respective toe shape. Tape them into place, using the natural edge of the shaped

leather as a starting point. Begin to fit the footbed pieces to your feet according to the instructions. Most likely you will not change the tip of the toe shapes, but likely you will pull the sides of the toe shapes inward and tape them in a tighter position.

10. **Draping and Marking.** Once both footbeds are taped into the toe pieces, slide your foot into one. Over a low stool, slide your heel block underfoot. Drape the ankle strap around your foot and adjust the placement until it looks right. The back of the ankle strap should be snug against the top of your heel. Mark a dot 3/8" from the outside edge where each edge of each strap hits the footbed.

ABOVE: ***10.*** *Draping and marking*

11. **Dots and Slots.** Punch out the dots you made in step 10 with the rotary hole punch on the smallest setting. Place that footbed back-to-back against the other footbed and transfer the dots with a pencil or awl. Cut two parallel lines connecting each set of dots to create the slots that your ankle straps will drop through.

12. **Fitting.** Slide the ankle straps into the slots you created and tuck them underfoot. Secure the bottom tabs with masking

tape as you work to get the fit just right.

13. **Outlining.** When you're happy with the fit of both the ankle straps and toe shapes, mark where everything lands. Starting with an awl, reach into the toe pocket and scratch a line where the edge of the footbed sits inside the toe shape. You only need this line on the sides of the shoes (not the deep front of the toe) because most likely these are the places where you adjusted the fit in step 9. The line will tell you where to scratch and glue inside the toe pocket. Next, as you remove the tape from the bottom of the toe shapes, use a permanent marker to outline where the leather lands on the bottom of the footbed. Outline where the ankle strap tabs land as well.

14. **Scratching.** Take the toe shapes off the footbeds and scratch all the surfaces that will be glued: the ankle strap tab areas, the bottom of the footbed, and the inside of the toe pockets. It's hard to reach inside, but you can work out a way to do it without crushing the shape you created. Because it's the textured side of the leather, you won't need to add much texture.

15. **Gluing.** Apply glue to all the scratched surfaces. I like to start with the insides of the toe pockets, as these take a bit longer to dry than the rest. When the glue is tacky and no longer wet, carefully slide the footbeds into the toe pockets, allowing them to join only once they are at the deepest point. Press together. Then press the other tabs in place and try on the shoes. If something needs to be adjusted,

pull it up with pliers and reglue in the corrected position. When you're satisfied with the fit, hammer all the glued areas over the shoe anvil to secure the bond.

16. **Skiving.** Use your knife blade to skive down the edges of the tabs on the bottom of the footbed.

17. **Joining Soles and Heels.** Scratch up the top of both heel blocks and the bottom of the outsoles where the heels will go. Apply glue to these four areas and wait for the glue to get tacky. Carefully join the heel block to the outsole and hammer the sole onto the heel over a sturdy surface. Secure the heels onto the outsoles with heel nails.

18. **Joining Uppers to Leather Soles.** Place your uppers on top of the rough-cut outsoles. Use a pencil to mark any place the outsoles project beyond your uppers. Use a belt sander to sand down the excess outsole material to a smooth finish. If you don't have access to a sander, perfect the sole edge as much as possible with your knife. Once the outsoles are dusted off, again place them under your uppers. Line them up so they come to the very front edge of the toe shapes and, using a fine-point pencil or awl, trace the outsole's shape onto the bottom of the toe shape. This will be your limit line for scratching and gluing.

ABOVE: ***15.*** *Gluing*

ABOVE: ***18.*** *Tracing the outsole onto the upper*

19. **Scratching and Gluing.** Rough up the entire bottom of the upper, all the way to the line you drew in step 18. Also scratch the entire top of your heavy leather outsoles. Apply glue over both of these texturized surfaces and wait for the glue to become tacky.

20. Hold the upper, glue-side up, in between your knees. Hover the outsole above, holding with both hands. Starting at the toe, carefully lower the outsole onto the upper, making sure the layers are lining up exactly as you want. Press the layers firmly together. Then slide the shoe upside down onto the shoe anvil and hammer. Repeat the joining and

hammering with the second shoe. Try the shoes on to use your own body weight to further compress the layers.

21. **Sanding and Trimming.** There is a good chance that the back half of the shoes will be uneven where the heel and outsole come together. If you have a belt sander, sand this part of the shoe until all the layers are even. Be careful not to sand the covered toe: just make the sides and heel edges smooth. After sanding, trim the top edge of the footbed using scissors and a knife. If you don't have a belt sander, take your shoes to a cobbler to have them edge finished.

22. **Adding Buckles.** Now that the shoe is constructed, decide where to attach your buckling ankle straps. The longer strap will attach on the inside of the shoe and the short strap holding the buckle will attach on the outside. Mark where on the main ankle strap you want the thin straps to attach. Place the main ankle straps over heavy scrap leather and use an oblong punch and mallet to create the slots from which the buckling straps will emerge. (If you don't have an oblong punch and mallet, you can hand-cut the slots with your knife.)

23. Install your buckles onto the short straps using the instructions. Then drop the buckle straps and the longer straps into their respective slots and adjust until the angles are just right. Tape them in place, then secure them with rivets following the instructions.

24. **Leather Conditioning.** You may choose to condition your vegetable-tanned upper leather because the wet-forming

process can leave it a bit dry. Just rub leather conditioner all over the upper with a soft cloth. This will darken the leather a lot at first, but it will lighten again and even out quickly. Carnauba crème is another nice option and leaves the leather a little bit shiny and somewhat weather-resistant.

Mules

A mule is a backless shoe, without any constraints around the ankle. I've included a slightly higher heel for this design because I feel it helps you slide your foot into place and keep the shoe on.

I used suede for this style because I like the way it absorbs light, making the color appear rich and velvety. Also, wet-formed leather often develops creases as it ages, and suede helps to hide these imperfections. When you use a pointy-toe pair of lasts like I did for this style, you will need a pointed anvil to get into the toe tip so you can hammer the layers and set nails. To ensure that your lasting process goes smoothly, use the lightest-weight leather you can find for the lined toe pieces.

TOOLS

- Lasts, in roughly your size
- Pencil and permanent marker
- Scissors

- Knife
- Hammer
- Lasting pliers or chain-nose pliers
- Awl or rougher tool
- Shoe anvil
- Belt sander

MATERIALS

- Blank paper
- Pattern piece (see Patterns Foldout B)
- 1 ½' square 2/3 ounce suede
- 1 ½' square 2/3 ounce vegetable-tanned leather, for lining
- 1' square thick footbed leather (9/10 ounce or similar)
- Pair of heavy leather outsoles
- Water-based leather glue or solvent-based shoe glue
- 2 stacked heels (to make your own, see here)
- 2 extra layers of stiff leather soling material to add to the heels (optional)
- About 50 lasting nails
- Masking tape

6 heel nails

Midsole leather in similar thickness to lined uppers

About 40 2-ounce brass clinching nails (optional)

Edge paint (optional)

INSTRUCTIONS

1. **Patterns.** Use your lasts to create your footbed pattern. Set one last onto the paper. Trace around it with a pencil, lifting the paper to reach all the contours of the bottom of the last. Stand on the pattern you drew. Ideally your foot will just barely exceed the width of the shape; that is good! The pattern should be ever-so-slightly narrower than your foot. Make sure you have a little wiggle room (about ½") in length at the toes and the heel. If you don't, simply elongate your drawing at the heel. It's also okay if your big toe drifts off the pattern. That's fairly common, and of course the upper leather will keep all your toes safely inside the shoe. Before you cut the pattern out, add more width to the back half of the pattern toward the heel, making your pattern as wide as the heel block you plan to use. Cut out the pattern and label it *footbed*.

2. To make your outsole pattern, trace your footbed pattern onto paper and add a halo about ⅛" all the way around. This ensures that your outsole will have some room for

shrinkage, which happens when the heavy leather gets wet. Cut out the pattern and label it *outsole*.

3. Trace the pattern from Patterns Foldout B or make your own variation of a large triangular shape. Cut out the paper pattern and check that it works on your last, making sure its edges extend at least 1" under the bottom edge of the last when pulled snugly around it. With mules, it's important that the upper pattern covers more of the foot than it leaves bare. In other words, if you make the toe pocket too shallow, it may be tricky to keep the finished shoe on and your foot may shift from side to side.

4. **Tracing and Cutting.** Trace both a right and left toe shape on both your upper suede and lining leather. Cut out all the shapes roughly; they'll be trimmed down after they are lined.

   Trace a right and left footbed pattern onto the footbed leather and cut out the shapes, removing your outlines as you cut.

   Trace a left and right outsole onto the heavy leather soling, dampen the leather, and carefully cut the shapes out with a knife.

5. **Lining.** Apply glue to the insides of both of your upper leather and lining leather and wait for the glue to become tacky. You shouldn't need to scratch the leather before gluing because you're working with the textured sides of the leather. Join the layers very carefully, making sure no

air pockets occur when you smooth the layers together. Tap all over with a hammer to secure the bond.

6. Use your upper pattern to retrace the topline (the only line you will see on your shoe; see here) onto the suede. Cut just inside this new line so that no marker lines remain on your uppers. The edges that will tuck under the last do not need to be trimmed down.

7. **Stacked Leather Heels.** If you bought prestacked heels and want to make them taller, simply scratch, glue, and hammer one or two additional layers of stiff leather soling to the flat side of the heel. Or, if you're making your heels from scratch, stack more layers of soling leather than you normally might. Note that any heel higher than 1" requires a shank between the outsole and upper layers.

8. **Shaping Leather Soles.** Soak the outsoles in water for about 15 seconds, or until fully saturated. Following the instructions, shape them to have a toe spring and arch lift, and so that they will join seamlessly with the heel blocks. Leave the heels under the outsoles as they dry, for 6–24 hours.

ABOVE: ***7.*** *Stacking leather heels*

ABOVE: ***11.*** *Trimming the wrinkles*

9. **Lasting.** Prepare your workstation with your lasts, the leather for your toe pieces, lasting nails, and either a pair of lasting pliers or a hammer and chain-nose pliers. Drape your upper leather over the last and determine where you want it to land while you are lasting it. Mark this line with a pencil on both lasts so both toe shapes will be as similar as possible.

10. Soak one of the toe pieces in water until fully saturated, about 15 seconds, then position it over the last, spreading it flat against the shoe form so there are no air pockets between the leather and the last. Holding the upper tightly against the last, flip the shoe form upside down in your lap.

Place a nail on either side of the bottom of the last to hold the leather in place as you begin. Starting at the toe, tug on the leather with pliers and secure each section to the bottom of the last with a nail; your nails will be tight against each other at the toes and placed about ½" apart as you proceed toward the heel. Large wrinkles will form under the edge of the last. Don't let any wrinkles emerge above the edge, as those wrinkles would remain part of your shoe. You can manipulate the leather more than you would expect; just pull and fold the excess leather into tidy folds under the last. Repeat with the second toe piece and let dry for 24 hours.

11. **Trimming the Wrinkles.** When the toe shapes appear dry, pull out all the lasting nails with pliers and remove the leather pieces from the lasts. (If the shapes need more time to dry, just slide them back onto the lasts for a few hours.) Place a last upside down in your lap and trim away the wrinkles carefully with a knife. Compare the upper parts of your two toe shapes. If one differs from the other, cut the larger one to match the smaller so they will be symmetrical.

ABOVE: ***13.*** *Outlining where the toe shape lands on the footbed*

ABOVE: ***14.*** *Scratching the insides of the toe shapes*

ABOVE: ***18.*** *Making the outsole just the right size*

INSTRUCTIONS

12. **Fitting.** Slide each footbed into its toe shape and tape in place. Adjust the fit to suit your feet. The fit should allow a little room for your foot to lift as you walk, without significant gaping at sides. You might have a little gaping at first, but once the leather adapts to your feet the extra space will travel to the top of the shoe. If at this point the width of the footbeds causes the toe shapes to fit awkwardly, trim down the footbeds until the shoes fit well.

13. **Outlining.** When you're happy with the fit, mark where everything lands. Starting with an awl, reach into the toe pocket and scratch a line where the edge of the footbed

sits inside the toe shape. You only need this line on the sides of the shoes (not in the deep front of the toe) because the sides are most likely where you adjusted the fit in step 12. The line will tell you where to scratch and glue inside the toe pocket. Next, as you remove the tape from the bottom of the toe shapes, use a permanent marker to outline where the leather lands on the bottom of the footbed.

14. **Scratching and Gluing.** Take the toe shapes off the footbeds and scratch up the surfaces that will be glued: the bottom of the footbeds and the inside of the toe pockets. It's hard to reach inside, but you can work out a way to do it without crushing the shape you created.

15. Apply glue to all the scratched surfaces. I like to start with inside the toe pockets, as these take a bit longer to dry than the rest. When the glue is tacky and no longer wet, carefully slide the footbeds into the toe pockets, allowing them to join only once they are at the deepest point. Press together with your fingertips and try on. If something needs an adjustment, just pull it up with pliers and reglue in the corrected position. When you're satisfied with the fit, hammer all the glued areas over the shoe anvil to secure the bond.

16. **Joining Leather Soles and Heels.** Scratch up the top of both heel blocks and the bottom of the outsoles where the heels will go. Apply glue to these four areas and wait for the glue to get tacky. Carefully join the heel blocks to the

outsole and, with the heel positioned over a sturdy surface, hammer the outsole downward onto the heel. Close up any gaps with additional hits with the hammer. Secure the heels onto the outsoles with heel nails.

17. **Making Midsoles.** Find midsole leather shapes large enough to fill in the negative space between the toe areas and at the heels. Use the shoe anvil to create your midsole impressions (see here), then cut out the shapes. Scratch and glue the midsole layer onto the bottom of the footbed, producing an even surface. Trim the midsole to match the footbed edges exactly. You should now have an even surface to which to adhere the outsole.

18. **Preparing the Outsoles.** Place your uppers on top of the roughly cut outsoles. With a pencil, mark where the outsoles protrude beyond the edges of your uppers. Use a belt sander to sand down the excess material from the outsoles. Note that the heel area will be sanded again later so don't worry too much now about making that perfect. Once the front portion is sanded to a smooth finish, use an awl or fine-tip pencil to trace the new outsole shape onto the bottom of the upper. This will be your limit line for scratching and gluing.

19. **Scratching and Gluing.** Rough up the entire bottom of the upper/midsole, all the way to the line you drew in step 18. Also scratch the entire top of your outsoles. Apply glue over all of these texturized surfaces and wait for the glue to become tacky.

20. **Joining Uppers to Leather Soles.** Hold the upper in between your knees with the glue side facing up. Hover the outsole above, holding with both hands. Starting at the toe, slowly lower the outsole onto the upper, making sure the sole lines up exactly as you intended. Press the layers firmly together. Slide the shoe facedown onto the shoe anvil and hammer to secure the bond. Repeat the joining and hammering with the second shoe. Try the shoes on to use your own body weight to further compress the layers.

21. **Nails.** One at a time, slide the shoes onto the shoe anvil and set brass clinching nails all around the outside edges of the outsoles as explained. The nails help tighten the sole connection, acting as staples all around the shoe. You may skip this step, but you might end up with small gaps where the outsoles meet the uppers.

22. **Sanding and Trimming.** Slide the mules onto your feet and mark the point behind your heel where you want to stop sanding. Ideally, this will be about 3/8" behind your heel. Sand the back portions of the mules until the layers have a smooth edge. Trim the remaining top edge of the footbed using a knife and scissors.

ABOVE: ***21.*** *Making the pilot holes for clinching nails*

23. **Edge Finishing.** Apply an edge finish, if you'd like, to the sides of the soles and heels. Here I painted the edges with bright blue acrylic leather edge paint.

ABOVE: ***23.*** *Edge finishing*

Country Shoes

This style has a closed-toe shape and a closed heel that ties. I've added a few fun elements, including a zigzag edge, a hand-stitched pull tab, and eyelets. If you want, you can sew a tongue to the toes to unite the front and back of the shoe and add a little cushion between your foot and the laces.

TOOLS

- Lasts, in roughly your size
- Pencil and permanent marker
- Scissors

- Zigzag rotary cutting tool (optional)
- Knife
- Decorative stamp (optional)
- Wooden or rawhide mallet (optional)
- Lasting pliers or chain-nose pliers
- Shoe anvil
- Hammer
- Awl or rougher tool
- Rotary hole punch
- Dull-tipped sewing needle (optional)
- Belt sander (optional)

MATERIALS

- Blank paper
- Pattern pieces (see Patterns Foldout A)
- 4’ square lightweight upper leather (2/3 ounce)
- 4’ square lightweight vegetable-tanned leather, for lining (2/3 ounce)
- Water-based leather glue or solvent-based shoe glue
- 1’ square thick footbed leather (9/10 ounce or similar)

Pair of heavy leather outsoles
About 80 lasting nails
2 stacked heels (to make your own, see here)
6 heel nails
Masking tape
1’ square midsole leather
Thread (artificial sinew or waxed linen) or 2 double-cap rivets (optional)
Clear edge paint (optional)
About 50 2-ounce brass clinching nails
8 eyelets (optional)
2 leather laces about 30” long

INSTRUCTIONS

1. **Patterns.** Use your lasts to create your footbed pattern. Set one last onto the paper. Trace around it with a pencil, lifting the paper to reach all the contours of the bottom of the last. Stand on the pattern you drew. Ideally your foot will barely exceed the width of the shape; that is good! The pattern should be ever-so-slightly narrower than your foot. Make sure you have a little wiggle room (in this case, about 1/4") of extra length at both the toes and the heel. If

you don't, simply elongate your drawing at the heel. It's also okay if your big toe drifts off the pattern. That's fairly common, and of course the upper leather will keep all your toes safely inside the shoe. Because this style is enclosed at the heel, the footbed will remain narrow at the back. Cut out the pattern and label it *footbed*.

2. To make your outsole pattern, trace your footbed pattern on paper and sketch an additional 1/8" all the way around. This ensures that your outsole will have some room for shrinkage, which happens when the heavy leather gets wet. Cut out the pattern and label it *outsole*.

3. Trace the upper patterns from Patterns Foldout A or make your own variations that include a toe shape and an enclosed ankle shape. (As an alternative to lace-up ankle shapes, you may connect yours with a buckle or stud.) Cut out these paper patterns and check that they work on your lasts, making sure they extend at least 1" under the bottom edge of the last when pulled snugly against it.

4. **Tracing, Cutting, and Lining.** Trace the upper shapes onto your upper and lining leathers, giving them each a 3/8" halo. Glue the upper pieces to their linings and tap with a hammer to secure the bond.

5. Retrace your upper pattern onto the lined leather to make a final cut. I used a zigzag rotary cutter on all the edges that will be seen, but you can create straight edges using scissors if you prefer.

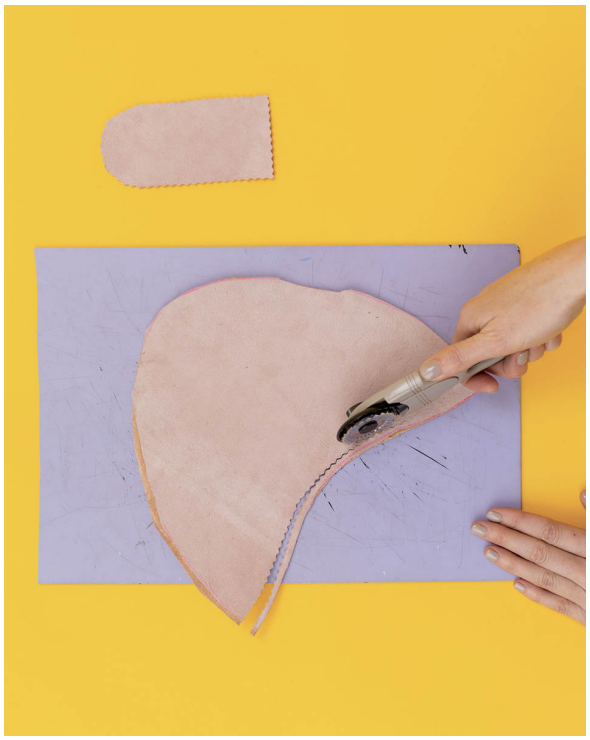
6. Trace a right and left footbed onto the thick leather. Carefully cut out the shapes with a knife, cutting just inside your lines so no marks remain. Trace your outsole pattern onto heavy leather soling, dampen the leather, and patiently cut it out with a knife. The edges on your outsoles can be imperfect; they will be sanded down later.

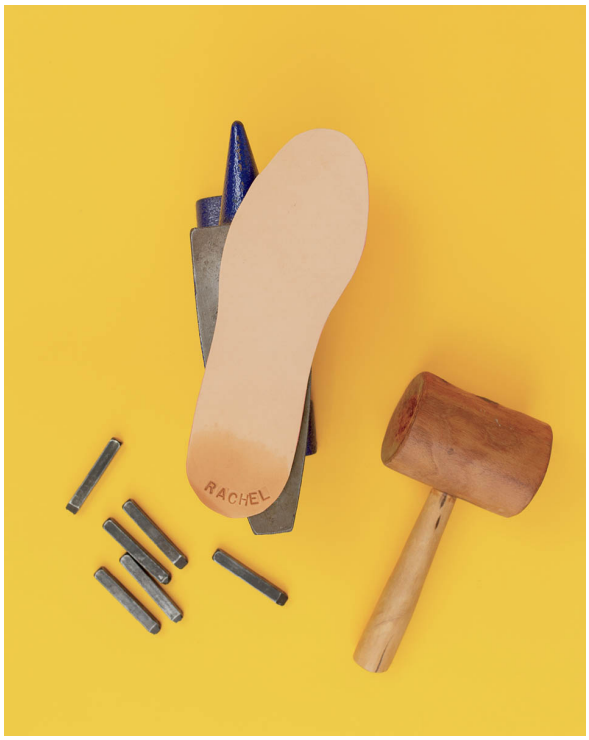
7. **Shaping Leather Soles.** Soak the outsoles in water for about 15 seconds, or until fully saturated. As explained, shape them to have a toe spring and arch support, and so that they will join seamlessly with the heels you'll be using. Let the outsoles dry for 24 hours.

8. **Decorative Stamps.** If you would like to decorate your footbed with letters or date stamps, do so now. I punched my name into the area near the heel.

9. **Lasting.** While the outsoles dry, prepare your workstation with your lasts, the leather for your toe pieces, ankle shapes, lasting nails, and either a pair of lasting pliers or a hammer and chain-nose pliers. Drape your upper pieces onto your lasts and determine where on the last you want them to land to achieve your desired look. Mark a line on the last to indicate how high the toe pieces will land, for instance, or how high the ankle pieces will land.

ABOVE: ***4.*** *Tracing onto exterior and lining leathers*





ABOVE: ***5.*** *Cutting*

ABOVE: ***8.*** *Decorative stamps*

10. Soak a toe shape in water for about 15 seconds, and spread it onto the shoe form so there are no air pockets between the leather and the last. Holding the upper tight against the last, flip the shoe upside down in your lap. Starting at the toe, pull the edges of the leather with pliers and secure each section to the bottom of the last with a lasting nail; place your nails about 1/3" apart. Large wrinkles will form under the edge of the last; just don't let any wrinkles emerge above the edge, as those wrinkles would remain part of your shoe. You might be astonished by how much you can force the leather to do what you want. Take care to have the second toe piece mimic the placement of the first.

11. Next soak the first ankle piece in water, then wrap it around the heel of the last. Stretch and nail the ankle pieces the same way you did the toe pieces. Make sure the leather is evenly distributed on the right and left sides of the last and that the top of the heel back is tight against the last. It is okay if the leather extends above the top of the last. Repeat with the second ankle piece, taking care to make it symmetrical with the first one you lasted. Let all pieces dry for 24 hours.

12. **Joining Soles and Heels.** While the shapes are drying on the last, use an awl or rougher tool to scratch the top of both heel blocks and the bottom of the outsoles where the

heels will go. Apply glue to these four areas and wait for the glue to get tacky. Carefully join the heel blocks to the outsoles and hammer the soles onto the heels over a sturdy surface. Close up any gaps with additional hits with the hammer. Secure the heels onto the outsoles with heel nails.

13. **Trimming the Wrinkles.** When the toe and ankle shapes are fully dry, pull out all the lasting nails and remove the leather pieces from the lasts. (If they need more time to dry, simply slide them back in place and wait a bit longer.) Carefully trim off the wrinkles of the toe shapes with a knife, as explained. Slide the ankle pieces back onto the lasts and trim the wrinkles off them as well. When you're finished trimming, all the shapes should sit on an even keel when they are placed on a flat surface. They don't need to be perfectly flat, though, because you can do additional skiving after the pieces are glued in place. Compare the upper portion of your two toe shapes and ankle shapes. If one differs from the other, trim the larger one to match the smaller so they will be symmetrical.

14. **Fitting.** Paying attention first only to the toes, start the fitting process using the directions. Once you're happy with how the toe shapes fit, slide the ankle shapes onto the footbed and tape them into position. In addition, slide your heel blocks under your feet while checking on the fit. Decide whether the footbed needs to be cut down in length or width, or both, to achieve the best fit. You want the back

of the shoe to fit snugly. If the heights of the ankle shapes sit too high on your ankles, trim them down with scissors.

15. **Outlining.** When you're happy with the fit of all your pieces, reach the awl inside each toe pocket as far as you can and trace the line where the footbed rests. Repeat this process with the ankle pockets, just making an indent with your awl. This will serve as the limit line for your scratching and gluing. Hold each shoe facedown in your lap and slowly remove the masking tape you used for your fitting process. Use a permanent marker to outline where all the uppers land on the bottom of the footbeds.

ABOVE: ***11.*** *Lasting the ankle piece*

ABOVE: ***14.*** *Fitting*

ABOVE: ***14.*** *Ankle piece fitting snugly*

16. **Scratching and Gluing.** Remove all the pieces from the footbed. If you are worried about mixing up the rights and lefts, mark each piece with a little *R* or *L*. Give texture to the outlined areas inside the toe pockets, inside the ankle shapes, and on the bottom of the footbeds. Apply glue to all of the textured surfaces, starting inside the toe pockets, since these take the longest to get tacky. When the glue is tacky and no longer wet, carefully slide the footbeds deep into the toe pockets without letting the pieces touch, pressing them together only once your outlines match up. Carefully join the ankle pieces in the same way, and check the fit on your feet. If anything needs to be corrected, pull it

up now and reglue in the corrected position. Hammer these areas over the shoe anvil to reinforce the bond.

17. **Midsole.** On this shoe, the spaces a midsole will fill are smaller than usual. Create this layer using scrap leather and following the midsole directions. This midsole layer doesn't need to fit precisely; it just serves to even out the bottom of the shoe. However, you do want the midsole to align perfectly with the side edges of the footbed, as this is the one spot it will be visible.

ABOVE: ***17.*** *Midsole*

ABOVE: ***18.*** *Pull tabs stitched into place*

ABOVE: ***19.*** *Tracing the outsole onto the upper*

18. **Sewing the Pull Tabs.** Determine where you want your pull tabs to fold back on themselves (you may want to trim them down), and mark a few dots on the top layers where you'll stitch them. I marked eight dots in a square shape on each tab. Punch out these dots using the smallest setting on the rotary hole punch. With a pencil, transfer the dot placements to the bottom layers and punch those out as well. With your dull-tipped sewing needle and thread, stitch together the layers using any stitch you wish. (Always start with more thread than you think you'll need so you'll have plenty of thread to tie the knots.) Nestle your knots between the layers of the tabs — not on the bottom, where the knots would rub against your foot, and not on the top, where they

would be visible. Alternatively, you can rivet the pull tabs into place or omit them altogether.

19. **Sanding.** Place your uppers on top of the roughly cut outsoles; the outsoles should come to the very edge of the undersides of the uppers. With a pencil, mark any place the outsoles protrude beyond the upper edges. Use a belt sander to sand down all of the edges to a smooth finish. Once the outsoles are sanded and match the bottom of the upper, use a fine-tipped pencil or marker to trace the outsole shape onto the bottom edge of the upper. This line is necessary so you will know where to scratch and glue. Once the outsole is glued in place, you won't see this line.

20. **Edge Finishing.** If you chose to apply a clear edge paint, as I did, do that now. (It's easier to apply the edge finish before the outsole is attached.)

21. **Joining Uppers to Leather Soles.** Scratch up the entire bottom of your upper/midsole (all the way up to the line you made in step 19), as well as the entire top of your heavy leather outsoles. Apply glue over these texturized surfaces and wait 5–10 minutes, or until the glue becomes tacky. Starting at the toe, carefully join the layers together, making sure they are lining up exactly as you want. Press the layers together firmly with your fingers, then slide the shoe upside down onto a shoe anvil to hammer together, ensuring that each hammer hit is supported by the anvil. Try the shoes on and use your own body weight to further compress the layers.

22. **Nails.** Working on the shoe anvil, with the upper facedown, set brass clinching nails through the layers where the toe pieces meet the outsole. For the ankle pieces, you can't set nails through the heel, so set your nails instead from the top, hammering down through the footbed leather. For the spots near the front of the ankle pieces that you can reach with your hammer, simply make your pilot hole from above and hit your nails while the shoe is supported over the anvil. For harder-to-reach spots toward the back of the heel, make a pilot hole, place in the nail, and set the shoe onto the anvil with the heel facing up, supported by the anvil. Give the heel two taps; pull the shoe off the anvil and make sure the nail is going in straight and isn't bending. Then replace the shoe on the anvil and hit it again with more force, until the nail head is flush with the footbed.

23. **Adding Laces.** Draw dots on one shoe where you want your lace holes. Punch out these holes with the rotary hole punch, using a setting that will allow the laces to pass through easily. Position your shoes side by side and duplicate the dots onto your second shoe with pencil. Punch these dots out as well. To add eyelets to your lace holes for a more finished look, follow directions on your package of eyelets. Cut a pair of laces that are long enough to tie a bow.

ABOVE: ***22.*** *Setting nails from below*

ABOVE: ***22.*** *Setting nails from above*

Troubleshooting

One of the wonderful side effects of making my own shoes is that now I feel capable of fixing shoes that I might have otherwise thought were lost causes. Now I feel confident wielding a knife or scissors to operate on the upper of a shoe that isn't fitting just right. This attitude will come in handy for shoes you may have just completed or shoes that have been sitting in the back of your closet for years. I encourage you to try it — in most cases it will be a success.

Strap Too Long or Too Short

If a sandal strap is too long, cut it down to size. If both strap ends go into the footbed, you will need to snip the strap (in an attractive way, if possible) and rivet or sew it back onto itself so that it fits correctly. I would snip it, overlap it so that it fits to your liking, and mark where you will place a rivet (or several). Hopefully you can find a location for your rivet that won't rub your foot (avoid the toes and the back of the ankle). see more information about setting rivets.

If a strap is too short or too tight, you will need to attach a little extra piece. Don't worry; at first this may feel like you're turning your sandal into a Frankenstein monster, but when it's finished, you may like it better than before. Often these strap extensions end up looking like an intentional design element. Snip the too-tight strap, rivet the new piece onto one side, and

mark where the second rivet needs to be placed so that the strap will fit correctly. Set the second rivet and trim the strap ends for a finished look.

For an even more seamless look, you might consider skiving the overlapping ends before you rivet them together. This will help make the overlap less bulky. You can also glue them together before riveting.

Topline Correction

If an ankle strap or heel cup is rubbing your ankle bone in a way you hadn't planned, I encourage you to cut the piece down. This is one of the benefits of making a pair of shoes without a stitch line at the top: you can just cut into it. With the shoes on your feet, draw your new desired topline with a pencil. Using your best scissors, carefully cut the new line, trying to merge it seamlessly with your original edge. Carefully duplicate the cut on your other shoe.

ABOVE: *Topline correction*

Sole Separation

An age-old problem. If a pair of shoes is gaping where the footbed meets the outsole, you'll need to insert some shoe glue into the layers. If you are only doing a touch-up, do your best to keep the layers separate while the glue becomes tacky, at which point you can hammer the layers together. If a large portion needs to be reglued, it might be best to reglue the entire sole. Use your awl to pry open the spot that is coming apart and pull off the whole sole. Make sure the layers are relatively clean and free of dust, then apply glue to both surfaces, minding the drying time of the glue you are using. Carefully rejoin the layers and hammer to bond. If the edges are uneven or gluey,

you may need to resand the edges. This should provide a few more years of wear.

ABOVE: *Sole separation*

Tight Shoes

If shoes or sandals you've made feel tight, you have several options for stretching the leather. I'd first encourage you to try wearing the shoes on short trips to see if the leather relaxes a bit. If the shoes need more stretch than this, you can take them to a cobbler, who will use a stretching solution and wooden forms that can be expanded inside the shoe. A more extreme (and effective) solution is to put your shoes on and quickly dip

them in warm water. Walk around in the shoes until they are nearly dry. This should stretch them a lot! After the leather has dried, recondition it with oil, because water makes leather quite dry and stiff.

Loose Shoes

If shoes you've made feel loose, try wearing socks with them. Or give them to a friend. You can also get creative with snipping straps and reconnecting the pieces with hardware. Your fix may look odd — or it may end up being a beloved part of the shoe.

Special Concerns

When you stop to think about it, feet are oddly shaped. After years of helping workshop students decide which designs will flatter their feet, I've come to a very foot-accepting place. For example, if you have wide feet, give them room! Sometimes trying to cover up your supposed flaws ends up emphasizing them.

FEET DIFFER IN SIZE

This is incredibly common. It seems like almost half the people who take my workshops have one foot that is slightly bigger than the other. This is a perfect problem to have if you are setting out to make your own shoes; you will finally have

control over the fit! I recommend basing your sole pattern on the larger foot, because you can trim or sand as needed later to fit the smaller foot. During the fitting process, adjust the straps for each shoe for maximum comfort, and check that the shoes look as symmetrical as possible.

BUNIONS

Bunions can be an inherited trait but can also be caused by pressure constricting your toes. If you deal with this issue, be sure to choose a sole shape with a spacious toe box. When making sandals, I would advise you to start with an X-shaped toe strap, or any other toe strap that gives your toe box the space it needs. Sometimes using several thinner toe straps instead of a single wide strap allows for a more nuanced, yet secure, fit. Regardless of the style, don't make the toe strap very tight. To keep your foot securely in place, pair it with a buckling or tying ankle strap.

When making closed-toe shoes, choose a last with a wider toe box to give your toes space to move and not be compressed. Consider widening your insole pattern a little to take this concern into account.

LONG FEET

When people have double-digit shoe sizes, sometimes the simple toe strap/ankle strap combo isn't as flattering as a sandal with three or more straps. This could mean two straps at the toe and one at the ankle, or the third strap could be at the

middle of the foot. Having a third strap breaks up the length of the foot and has the additional benefit of making the shoe more supportive.

HIGH ARCHES

Many people with high arches want their arches to feel "supported." Although additional arch support does feel nice, it may not necessarily be the best for foot strength in the long run. You might try becoming comfortable with less support: if you're using a rubber sole, just add a gentle curve into your arch while joining the layers (see here) for partial support. If you're using heavy leather soles, put a curve into the arch when shaping the sole with water (see here). If you have any orthopedic conditions, talk to your doctor about which areas of your sandals you might build up for additional support.

If you'd still like more arch support than that, you can build up the arch area with added material. Cobbler suppliers sell rubber inserts (sometimes called cookies) that you can glue into the layers of a sandal to add cushion in your arch. Or you can make your own inserts with leather or EVA foam rubber. Just make sure the interior edge of the arch is sloped down so it adheres seamlessly with the top and bottom layers of the sandal.

ABOVE: *Long feet*

Making Sandals and Shoes for Friends

At some point (possibly quite early in your shoemaking journey), friends will begin asking you to make them shoes. Doing so is very possible — but there are a few things you should know before you start down this path. The fit of sandals is much more forgiving than that of shoes; because of sandals' open toe and open heel, small differences in foot shape won't be such a problem.

Unless you have a pair of lasts in your friend's exact size, you'll need to check the fit on your friend's feet a few times during the course of your project. For this reason I recommend making a pair for someone in your household or workplace or for a friend who can stop by a few times. This will save you from making a pair that doesn't fit correctly.

Taking Tracings

Trace your friend's feet onto paper and cut out the shapes. Measure anything that might inform the fit of your design: the circumference of the big toe, for example, or the height of the ankle bones. Make notes on your foot tracing. When choosing a sole pattern, I encourage you to stick to tried-and-true sole shapes, such as those in the patterns in this book, or to make tracings from a sandal your friend wears.

Marking Patterns

Create paper patterns or use patterns from this book and test them on your friend's foot. If you invent your own pattern, I recommend making one for just one foot, since the flip side will serve for the other foot.

With the paper patterns draped over your friend's foot, find the places where they look best. Make marks on the paper sole where you want the upper pattern to land. Fold the upper patterns to indicate where the upper straps touch the sole, and draw lines at these folds. Remember you want at least 1 inch below each fold line to tuck underfoot and hold the glue. Label all your pieces with little arrows pointing toward the toes and an *R* or *L* (for right and left) and an *I* or *O* (for inside and outside), because you may become confused later on when all of the paper strips are lying in a pile.

ABOVE: *Taking tracings*

Checking In

Proceed to make the sandal as you normally would. Ask your friend to come by for a fitting when you have all the straps

pulled into place through the footbed but they aren't yet glued. Fit the straps and tape them in place, and you can proceed to complete the shoes with confidence.

Using Lasts

If your friend does not live nearby, making this pair of shoes could prove to be a more challenging process, and lasts will come in handy. If you can secure a pair of lasts in your friend's size, use them to create a pattern. When you have the straps cut out in leather, drape these around the lasts to decide where they should land on the footbed. Proceed to cut out the slots, and pull the upper straps into place.

When the leather sandals are made but the straps are not yet glued in place, put the lasts into the shoe, snug up all the straps, and mark the undersides accordingly. Even when making a sandal for a size other than your own, checking the look and feel on your own foot will be really helpful. The first attempt may not be perfect, but trial and error is an important part of learning. Good luck — and enjoy the shoemaking process!

ABOVE: *Checking in*

ABOVE: *Using lasts*

Glossary

Awl. A pointy tool used to scratch, scrape, poke, and mark.

Cobbler. A person who repairs shoes.

Footbed. The leather you stand on, also known as the insole or topsole.

Heel counter. A thin insert made from synthetic heat-activated material or vegetable-tanned leather. It is used in traditional shoemaking between the upper leather and lining leather to stiffen and strengthen the heel area, which is prone to losing its shape and structure. I don't use heel counters in the projects in this book, but I do occasionally make my own out of thin vegetable-tanned leather.

Last. A foot-shaped form around which shoes are built to ensure proper fit and structure. Lasts can be bought in standard sizes, and sometimes are custom made to duplicate an individual's foot. Lasts vary greatly in style, which can affect the fit as well as the shape of the shoe. You can purchase lasts in plastic or wood, by the pair or in a whole-size run, which means a set of a single style in every size.

Midsole. The middle layer of a sandal, often with cutouts to allow space for strap ends. Some shoemakers use cork fill (ground-up cork mixed with glue) for this layer, but sourcing

this is difficult in the United States. The midsole provides added volume and cushion to the shoe.

Outsole. The bottommost layer of a shoe or sandal; the part that touches the ground. Usually the outsole is made of stiff leather, rubber, or a synthetic blend.

Rougher. A tool with sharp prongs used to create texture on a smooth leather surface for the glue to bond to.

Shank. A metal, fiberglass, or stiff leather strip that serves as a bridge to strengthen a shoe structurally. It is placed between the outsole and upper layers and extends from the middle of the heel down toward the ball of the toes. A shank is a crucial component of a heel that is higher than 1 inch.

Shoe anvil. A metal casting shaped to provide support from inside a shoe for hammering; also called a cobbler's last. Sometimes shoe anvils come in small tabletop shapes, which I prefer, and sometimes they are free-standing, mounted at the top of a pole, in which case they are called jack lasts.

Skiving. The process of reducing the thickness of leather by cutting off thin layers (verb: *to skive*).

Toe puff. An insert used in traditional shoemaking to stiffen and strengthen the toe area, just as a heel counter is used to stiffen the heel area. *See* heel counter.

Toe spring. An upward curve at the toe of the outsole that helps keep your foot in place, prevents tripping, and can prevent

rocks from entering open-toe shoes.

Topline. The top edge of the upper, around the ankle.

Upper. All of the straps and other components that make up the top part of the sandal or shoe, not including the outsole and heel.

Resources

Discovering what you need and where to buy it is a large part of each shoemaker's journey. Going to a brick-and-mortar shoe-findings supplier is a great way to learn what's available in your area and what you may need to source online.

If you are lucky enough to go to a shoe-findings or cobbler supplier in person, be patient. These shops are set up to sell to the trade and may not be accustomed to selling retail to novice shoemakers. Shoemaking is an old-school industry; often shops have no websites and odd hours. Even with the most helpful shoe supply folks, it can take a moment to find a common lexicon. I've found that respect for the industry and an open curiosity will take you far.

Leather suppliers, on the other hand, are more accustomed to answering questions and helping you locate what you need. Still, it can take a moment to develop that common language. I've added some personal notes to the resources listed here to help you find what you're after.

Shopping List

To make your first pair of sandals, in addition to common items you probably already have (paper, masking tape, pencil, permanent marker, ruler, scissors, and hammer), you will need:

-
-
- Utility knife
-
-
- Awl

- Rotary hole punch
- Shoe glue (either water-based or solvent-based)
- Laces or hardware
- Approximately 1'–3' square of medium-weight leather for your uppers
  4/5 works best for most projects.
  2/3 ounce can be lined with another 2/3 ounce to create the correct thickness.
- Approximately 1' square of thick leather for your footbeds
  8/9, 9/10, or 10/11 ounce work best.
- Approximately 1 pair (or 1' square) stiff leather outsoles or rubber soling material for your outsoles
  Leather soles are sometimes called leather soling, full soles, soling leather, or soling bends. 7/8 ounce or 9/10 ounce work best. If you plan to use rubber soling, look for 12-iron to 24-iron thickness (equivalent to approximately 1/4"–1/2").

The first five items can be found at any leathercraft store or online.

I recommend sourcing leather in person at your local leather supply store if possible, otherwise online resources are available. You might have to purchase a larger hide, so think about going in together with a friend.

Leather and rubber outsoles are a bit harder to come by but can be found at any cobblery or shoe-findings supplier and online. If in doubt, ask your local cobbler!

Shops

Baltor O. & Sons

San Francisco, California

650-589-8759

Shoe findings, soles, heels, glue, tools, shoe anvils

This is a family-run business with a huge warehouse that's open to the public. I wandered the halls here and brought home different materials when I was first starting out.

The Hide & Leather House

Napa, California

800-453-2847

https://hidehouse.com

Leather, laces, hardware

They have great service, every kind of leather imaginable, and they ship!

Kaufman Shoe Repair Supplies

Brooklyn, New York

212-777-1700

www.kaufmanshoe.com

Leather, tools, glue

MacPherson Leather Company

Seattle, Washington

800-343-9949

www.macphersonleather.com

Leather, shoe findings, hardware, soling, glue

Last time I checked, they sell shoe findings only to the trade. Call first.

Maverick Leather Company

Bend, Oregon

877-845-0080

https://maverickleathercompany.com

Leather, tools, laces

Low prices!

Oregon Leather

Portland, Oregon

503-228-4105

Eugene, Oregon

541-343-2563

www.oregonleatherco.com

Leather, shoe findings, soling, lasts, glue, hardware

Both a leather shop and shoe-findings supplier, so I'm lucky that this is my hometown supplier.

Saderma Leather

Los Angeles, California

323-461-4861

Shoe findings, tools, glue, soling, heels, leather, lasts, hardware

Every cobbler in Los Angeles shops here. They have everything!

Sav-Mor Leather & Supply Co.

Los Angeles, California

213-749-3468

www.savmorleatherca.com

Leather, hardware

Tandy Leather

Multiple Locations

www.tandyleather.com

Leather, tools, hardware, glue

This national chain employs a friendly and well-informed staff. The stores host workshops that are sometimes free. Tandy is a great resource for affordable tools, occasional sales on leather, and my favorite water-based glue (EcoWeld). They do not sell soles or heels.

Warkov-Safeer

Winnipeg, Manitoba, Canada

800-665-8619

www.warkov.com

Leather, heels, soles, tools, glue

Zack White Leather Company

Ramseur, North Carolina

800-633-0396

www.zackwhite.com

Leather, soles, tools, hardware

Online Only

Brooklyn Shoe Supply

https://brooklynshoesupply.com

Tools, lasts, components

Cordwainer Tools

www.cordwainertools.com

Tools, lasts, glue

D. B. Gurney Company

https://dbgurney.com

Tacks, nails

District Leather Supply

https://districtleathersupply.com

Leather (smaller cuts and custom thicknesses), adhesives, tools, lasts

Etsy

www.etsy.com

Hardware, lasts, shoe anvils, leather

International Last

Contact Kevork Kalaidjian at

internationalshoelast@gmail.com

Lasts made to order in any shape

Leather Cord USA

www.leathercordusa.com

Leather laces

Lonsdale Leather

www.lonsdaleleather.com

Leather, hardware, lasts, tools, glue

Montana Leather Company

https://montanaleather.com

Leather (smaller cuts and every thickness), hardware, thread, leather and rubber soles

Sorrell Findings and Notions

https://sorrellnotionsandfindings.com

Leather, tools, lasts, glue

US Bind

www.usbind.com/

Extra-small button-head screws in every finish

Weaver Leather Supply

www.weaverleathersupply.com

Leather, tools, hardware

Featured Shoe Folk

If you want to learn more about the shoemakers I highlighted here, visit their websites.

Aldanondoyfdez

https://aldanondoyfdez.com

Jeremy Atkinson

www.clogmaker.co.uk

Julie Derrick

www.jdshoerepair.com

Reid Elrod

https://reidelrodbespoke.com

Amara Hark Weber

www.harkweberstudio.com

Keiko Hirosue

www.brooklynshoespace.com

Jason Hovatter

https://laughingcrowe.com

Faye Smith

https://sevillasmith.com

Lisa Sorrell

https://customboots.net

Further Reading

Clark, Christine Lewis. *The Make-It-Yourself Shoe Book: No Special Equipment Necessary*. Knopf, 1977.

Franklin, Valerie Schafer, and Geoffrey Franklin. *Leather Crafts: In-Depth Information on Tools, Materials, and Techniques (Idiot's Guides)*. Alpha, 2016.

Habraken, William (Boy). *Tribal and Ethnic Footwear of the World: Moccasins, Sandals, Clogs, Slippers, Boots and Shoes*. Mercury International, 2012.

Loomis, Mary Wales. *Make Your Own Shoes*. Unicorn, 1992.

Overs, Amanda. *I Can Make Shoes: A Beginner's Guide to Home Shoemaking*. Make House Publishing, 2019.

Raymond, Sharon. *Crafting Handmade Shoes: Great-Looking Shoes, Sandals, Slippers & Boots*. Lark Books, 2002.

Runk, David. *Shoes for Free People*. Unity Press, 1976.

Smith, Brendan. *Brendan's Leather Book*. Outer Straubville Press, 1972.

Metric Conversions

Unless you have finely calibrated measuring equipment, conversions between US and metric measurements will be somewhat inexact.

WEIGHT

To convert	to	multiply
ounces	grams	ounces by 28.35

LENGTH

To convert	to	multiply
inches	millimeters	inches by 25.4
inches	centimeters	inches by 2.54
inches	meters	inches by 0.0254
feet	meters	feet by 0.3048
feet	kilometers	feet by 0.0003048
yards	centimeters	yards by 91.44
yards	meters	yards by 0.9144
yards	kilometers	yards by 0.0009144

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ACKNOWLEDGMENTS

Thank you to Lori, Daniel, and Jordan Corry; Hannah Dang; Patrick DeWitt; Reid Elrod; William Habraken; Michaela Jebb; Em Johnson; Laurs Kemp; Jeanie Kirk; Michal Lumsden; Lauren Martin; Alex Page; Anne Parker; Allison Riegel; Amy Blaustein; Soumeya Roberts; Gary Robbins; and Airyka Rockefeller.

And thank you to everyone who has taken my classes — you've taught me so much!

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Swift
BLACK MOUNTAIN COLLEGE

About the Author

Rachel Corry has been making her own footwear since 2010. In addition to selling her own line of sandals, she has kits to help people make their own shoes. She teaches workshops all along the West Coast. Based in Portland, Oregon, she can be found online at rachelseessnailshoes.com.

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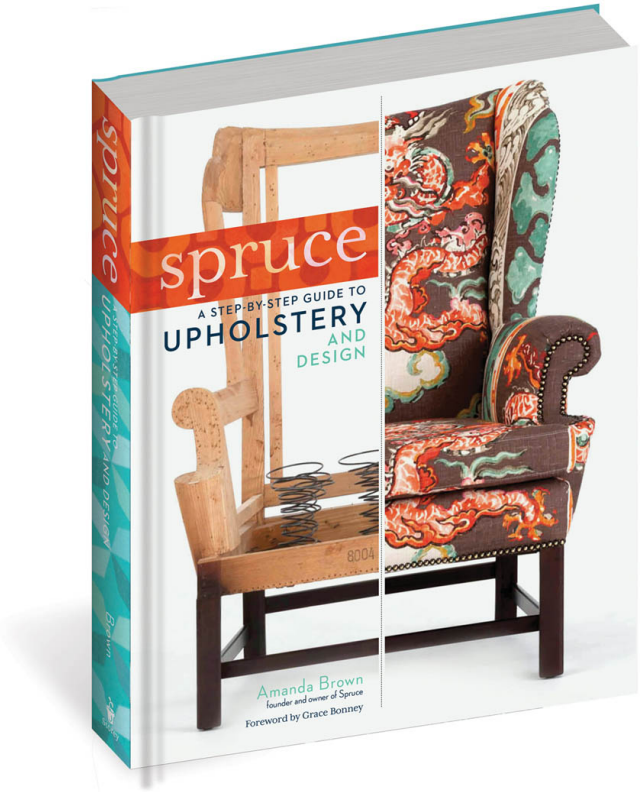

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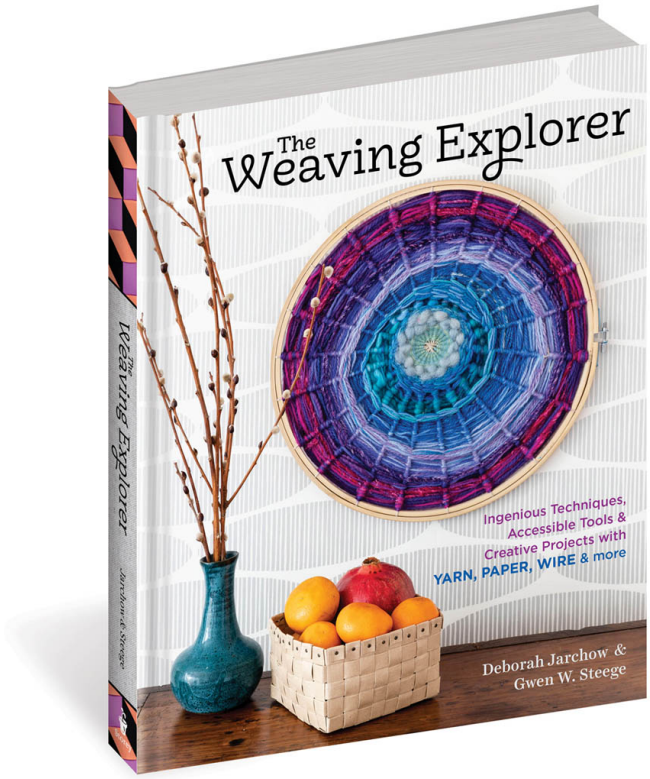

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Patterns

Place a sheet of white paper over a pattern, trace it, then cut the traced pattern out. This way you'll save these patterns for future use.

All of the patterns in this section are for the right foot. You only need to trace the shapes for the right foot onto your white paper; the flip side will be for the left foot. For example, to make a pair of Tying Sandals, you only need one right sole pattern, one right ankle strap, and one right toe strap. When you trace onto the leather, you will flip each pattern piece over to make the shapes for the left foot. This will ensure that your shoes are symmetrical. Mark a R or L on each side of the pattern to remind yourself which to use for the right and left foot.

Check the patterns on your foot before tracing onto the leather. Place your foot on your paper sole shape and drape the upper patterns over your foot. Keep in mind these patterns are starting points. I encourage you to alter the patterns for your feet and to your taste: cut away anything that might rub your ankle, for instance, or make longer straps where needed.

Make sure:

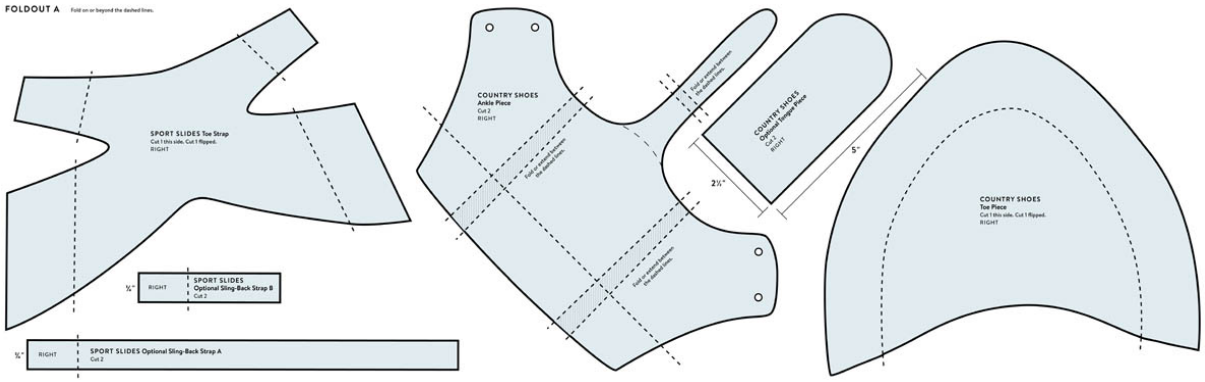
- You like the look of where the straps land on your foot.
- There is at least 1"–1½" of paper to tuck underfoot; these will be the tabs where you apply glue.
- You pinch, tape, cut, or add extensions to your paper pattern until it is just right for your foot. You can always retrace

from the original pattern if you need to start over.

- You trim the paper pattern down now if there is excess paper underfoot. This will prevent you from wasting leather.

The images below are for reference only. Please click on a link below to download a printable PDF of each pattern foldout. Print out the page(s) you need at actual size (100 percent). Cut along the light dotted lines along the long edge(s) of the sheet. Then arrange the cut pieces as indicated, matching up the diamonds, and tape the pieces together to form the full patterns.

FOLDOUT A



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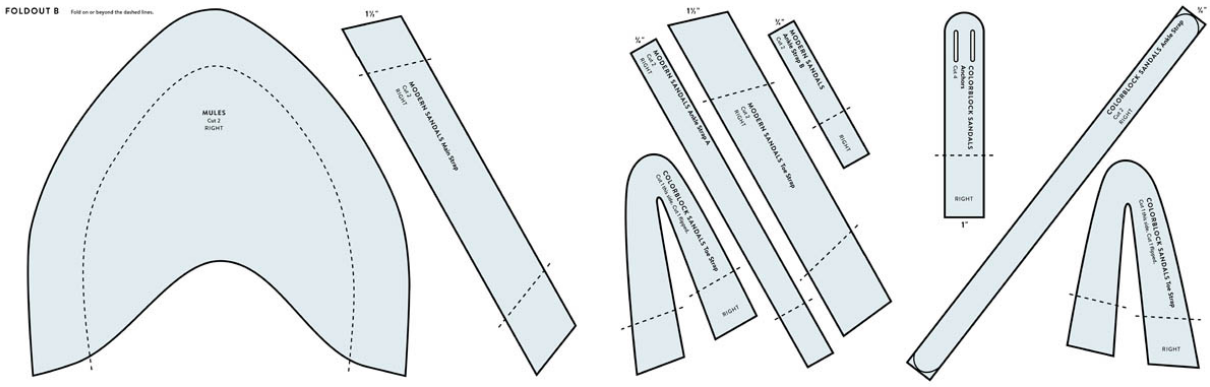
FOLDOUT B



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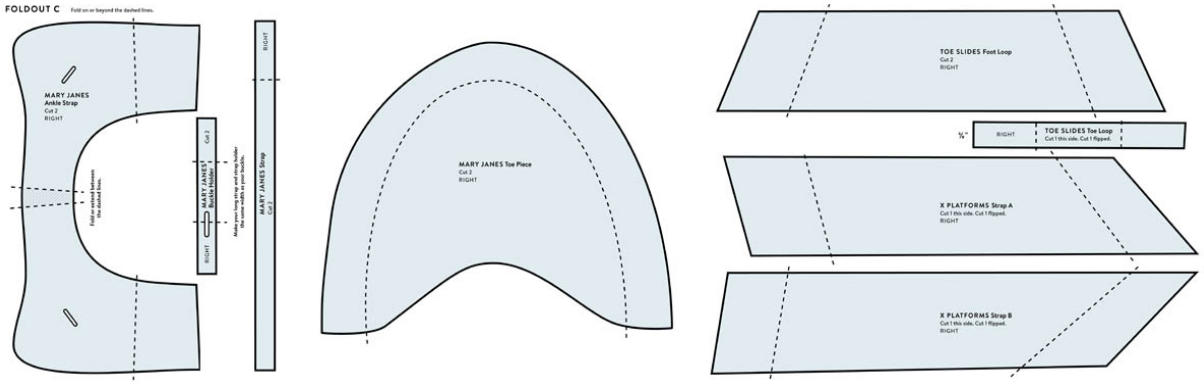

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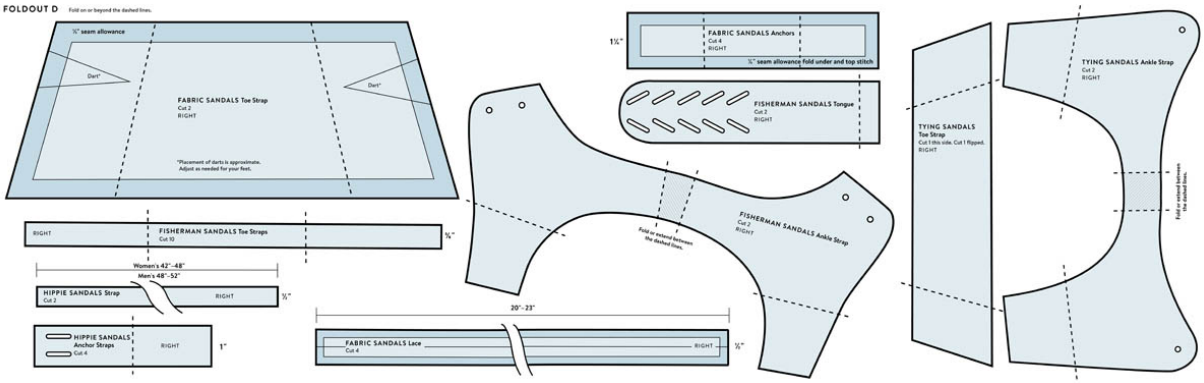
FOLDOUT D



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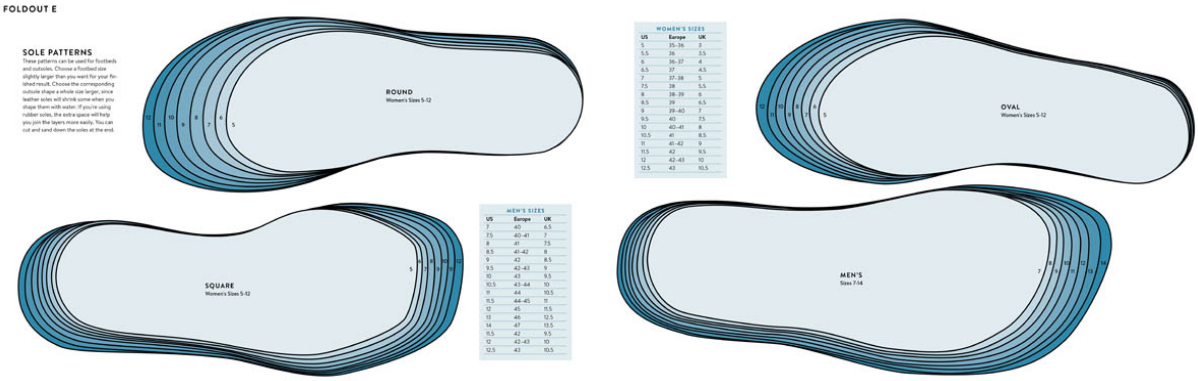

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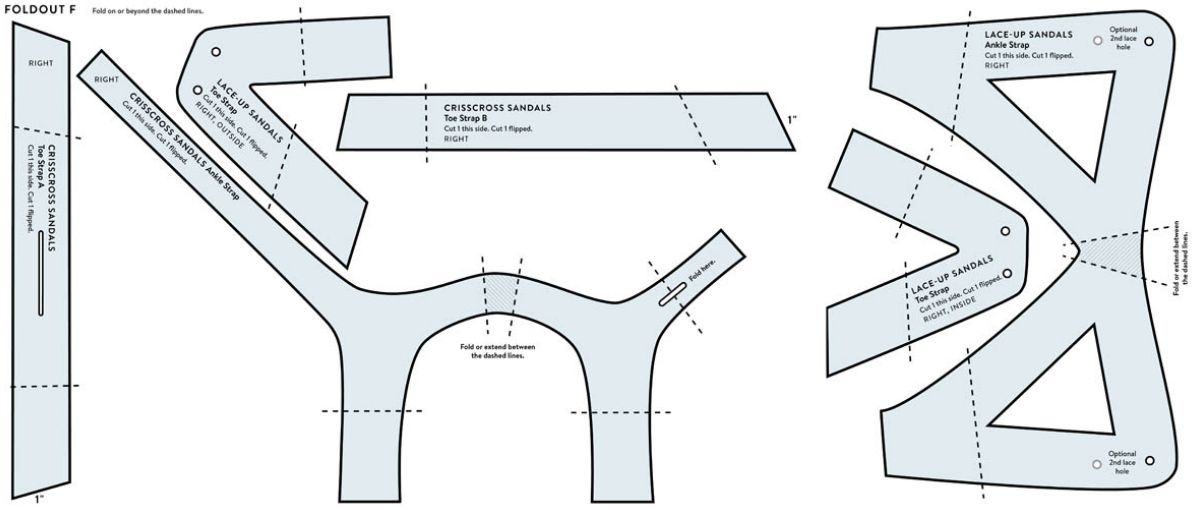
FOLDOUT F



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